TECHNOLOGY CONSULTING
IN THE GLOBAL COMMUNITY

Final Consulting Report

Agahozo Shalom Youth Village

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Technology Consulting in Global Community
Final Report

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Community Partner, Jean Claude Nkulikiyimfura

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Executive Summary

I. About the Organization

Agahozo-Shalom Youth Village, known as ASYV, is a unique residential community and high school located in Rubona, Rwamagana, Rwanda. The village is home of more than 500 underprivileged and orphan children from all around the country whose families were victims of the genocide in 1994. It also gathers 125 staff members (including administrative, teachers, fellow graduates) who are willing to provide their services to the community. The mission statement of the ASYV is as follows:

"To enable orphaned and vulnerable youth to realize their potential by providing a safe and secure living environment, health care, education and necessary life skills. Through these efforts it is our vision to create socially responsible citizens in Rwanda and, eventually, around the world."

II. Improving school recordkeeping and course material availability through curriculum digitization

ASYV primarily uses paper-based records and course materials, which is inefficient and ineffective. Teachers and administrators find it difficult to take attendance, quickly record grades, and distribute course materials to students. Because of this system, more class time is spent on writing notes for students to copy than on more engaging teaching methods. Curriculum digitization presents an excellent opportunity to solve these problems. The goal of curriculum digitization is (1) to improve students' academic performance by expanding access to course materials, (2) to improve the school's recordkeeping in order to more efficiently monitor student performance, and (3) to allow the school to track data over time in order to more effectively intervene with students who may face academic issues.

Outcomes

- Moodle was installed onto a VPS (virtual private server) and customized for ASYV's use
- 24 course pages and 60 user accounts were created
- Three teachers and two administrators were trained to full proficiency in Moodle
- A long-term plan was created to train more teachers and add more course content after the departure of the consultants
- Teachers' abilities to track grades and attendance are improved
- Students will gain increased access to course materials and improved critical thinking skills

Major Risks to Sustainability of the Goal

- Moodle training workshop must be organized and well attended
- Changing staff members at ASYV
- Students must be able to access limited computer resources
- Students must be briefly trained in use of Moodle

III. Implementing a mobile data collection platform as main data gathering tool for analysis and information sharing

The MEAL (monitoring, evaluation, assessment, and learning) team has been using disparate data gathering tools such as Google Forms, Excel files and Microsoft Access questionnaires. However, the need to collect data offline and on the ground emerged during the past weeks. Client-facing community workers who work in rural areas in Rwanda required a new solution, first, to be able to easily use a tool that could be synchronized with a server afterwards whenever they had internet connection, and, second, user-friendly with a low learning curve that could be handled by any worker in the village. After doing some research and benchmarking with the team, the suggested tool for collecting, analyzing and communicating data to other departments in the village was Commcare.

Outcomes

- Implementation of Commcare platform and adoption by staff members
- Commcare platform allows MEAL team to more efficiently manage their forms and surveys, thus improving organization and reducing complexity in administering their baseline and end line materials
- Commcare platform allows MEAL team to reduce 40% the time they take in analyzing and communicating results to management team and individual departments
- Data integration from only Commcare (as main data gathering tool) to Salesforce will reduce by 20% the time the MEAL team takes in transforming and cleaning data that is stored in other applications (e.g. Excel, Google Forms) that may not be needed from this point forward

Major Risks to Sustainability of the Goal

- Changing staff members from ASYV
- The head of the team is the only person responsible for the tool, and thus the only one trained in the use of it
- Renewal of the package for next year. The budget of the village can be altered based on the amount of yearly donations received
- Lack of mobile devices to be used for data gathering

IV. Integrating collected data in the village into one database stored in Salesforce

Since 2016, the administrative staff from the village and Liquidnet contemplated the possibility to funnel all data collected by each department in ASYV into a village-wide database in Salesforce. The project has been running since the beginning of the current year where the MEAL team, in charge of it, and a main developer in New York started to explore the business requirements for the system. The framework to store all data from the village in Salesforce was reconsidered since there is a limitation in the number of licenses to access the system. Therefore, the data that is going to be stored will be related to what the MEAL office collects: recruitment, alumni and health-related

information, baseline and end line surveys. Salesforce will offer to keep track of historical data from students from the moment they arrive to the village until they become alumni. It will also make reporting a more manageable task for individual departments.

Outcomes

- Created student object and custom fields in Salesforce regarding recruitment, intake, psychosocial, KAP (Knowledge, Attitudes and Practices), DAP (Development Assets Profile) and PPI (Progress out of Poverty Index) surveys.
- Salesforce system implementation will allow MEAL team to more efficiently and closely monitor individual departments
- Report and dashboard creation with aggregated and historical data about students will allow MEAL team to share it with management team of the village to make more data-informed decisions

Major Risks to Sustainability of the Goal

- Timeline delays in receiving the system from the developer
- Early stage of development of the project
- Changing staff members from Liquidnet office or ASYV
- Limited number of licenses that could be used by individual departments in the future
- Limited tech skills in the village to manage the system and keep it up to date

V. Additional Recommendations

In addition to the recommendations listed above, the consultants recommend that ASYV (1) explore the use of Academic Bridge for data collection and analysis and (2) hire a data analysis and IT support staff member or Fellow. Academic Bridge is a sustainable data collection solution that could supplement or replace Salesforce due to its cost, scalability, ease of use, and involvement and location of the owners/developers. A data analysis and IT support position would assist currently overworked staff members and help ASYV achieve its goals of improved data collection, analysis, and monitoring of students, as well as support curriculum digitization and other technology-dependent projects.

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Context Analysis

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I. About the Organization

Organization

Agahozo-Shalom Youth Village, known as ASYV, is a unique residential community and high school located in Rubona, Rwamagana, Rwanda. The village is home of more than 500 underprivileged and orphan children from all around the country whose families were victims of the genocide in 1994. It also gathers 125 staff members (including administrative, teachers, fellow graduates) who are willing to provide their services to the community.

The model of a youth village came after Yemin Orde, an Israeli youth village established in 1953 to care for orphans of the Holocaust. The meaning of its name is the following: Agahozo is the Kinyarwanda (one of the native languages) word for "a place where one's tears are dried" and Shalom is Hebrew for "peace". The mission statement of the ASYV is as follows:

"To enable orphaned and vulnerable youth to realize their potential by providing a safe and secure living environment, health care, education and necessary life skills. Through these efforts it is our vision to create socially responsible citizens in Rwanda and, eventually, around the world."

The village's goal is achieved by combining four essential elements to encourage the intellectual and emotional growth of students: the loving support of a family, a structured education, health and wellness services, and enriching extracurricular programs. All their programs and services are promoted based on two guiding principles: Tikkun Halev, or healing the heart, and Tikkun Olam, the healing that comes from helping others. In addition, seven essential core values are promoted among the children: Commitment, Role Model, Integrity, Respect, Learning Community, Support and, most importantly, the Interest of the Child.

With regards to new opportunities related to technology, the village went through an important progress in 2016 with the implementation of a solar field (17-hectare). This project helps the sustainability of Agahozo-Shalom in terms of new education programs for students focused in engineering and solar photovoltaic technology. It also provides a new source for connecting the village and the school to the internet through fiber optic cables installed using overhead distribution lines that are connected to the solar panels. Aside to the benefits for Agahozo-Shalom, the construction of the solar field has created 350 jobs and has increased Rwanda's energy generation capacity by 6% (Smith 2015).

Facilities

ASYV is built in a hilly town sprawling across 144 acres which comprises the village where the administration staff offices, residential houses for students, and a health center are located. The school, also known as Liquidnet Family High School (LNFHS), is 0.3 miles away (10-minute walk) uphill from the village. There is also a sports field with a basketball, a volleyball, and a soccer court, an auditorium that can accommodate 650 people, a dining hall and a farm across ASYV. It also encompasses a portion of land that has been rented for the next 25 years to GigaWatt Global which is the company who built the solar panels.

The offices at the administration include: accounting, finance, human resource departments, the director's office and some free spaces for fellow graduates or interns. Most of the staff have their own laptops that bring daily to the village. The residential area hosts 30 family houses where in each house there is a mama (acting mother who is responsible of guiding students) and 15 to 20 students living together. There are also 8 staff houses, 4 guesthouses for interns and fellow graduates and 2 club houses (orange and green). The orange clubhouse is equipped with 28 Dell laptops and some other old desktops that are sent to the family houses so that mamas and students can have access to MS Office Suite. It is at the same time IT's department location where Deo Kabirigi (IT Coordinator) and his two interns stay during the work day. Lastly, the health center has a layout similar to the Administration area and it is the work place for: the health and wellness leader, four psycho-social workers, two nurses and evaluation and monitoring officer.

The school (LNFHS) has 22 classrooms allocated for students, teachers and school directors. The two servers (earth and sky) that support the village are connected and stored in one small room at the school equipped also with routers, UPS, CPU's, Asus e-box machines and screens. Moreover, the school has six labs: chemistry, physics and biology lab, and three computer labs equipped with 27 HP desktop computers and 61 Dell laptops all of them with Windows 10. Just behind the school, one can see the solar field and a set of green houses where the village grows part of the food that is consumed by students and staff.

The following list shows other technology equipment throughout the village: access to fiber optic cable with 20 Mbps bandwidth (it was improved last year), 32 nanostations, 9 ruckus antennas, 8 TP-Link routers and 1 Vsat Antenna.

A more detailed list with specifications of the technology infrastructure will be shown in the next pages.

Programs

ASYV is a school and village which provides education, health and wellness services, extracurricular activities, and a family environment. Formal education in LNFHS comprises of an enrichment year and years Senior 4, 5, and 6. All classes are taught in English. In the enrichment year, students review the material from Senior 1, 2, and 3, which are the last three years of mandatory education in Rwanda. This is to ensure that all students catch up to the same level, because some students may have not had as good as a prior education as others. All students take courses in French, English, Entrepreneurship, and IT. After enrichment year, each student chooses to study one of the following combinations of subjects:

- Literature, French, Kinyarwanda (LFK/EFK)
- History, Economics, Geography (HEG)
- Math, Economics, Geography (MEG)
- Math, Economics, Computer Science (MCE)
- Physics, Chemistry, Biology (PCB)
- Math, Biology, Chemistry (MCB)
- Math, Physics, Computer Science (MPC)

Extracurricular activities include sports, arts education, science activities, and service. Art and science extracurricular activities take place in dedicated art and science centers; art activities include photography, music, sewing, and movie making. The service portion is called "Tikkun Olam," meaning "repairing the world." Students teach English in nearby schools, build houses for the poorer villages, work in a clinic, or do One Laptop Per Child training.

They also can participate in a club, such as Dance, Drums, or Information Technology. For students with high potential, ASYV also offers TOEFL and SAT classes.
Health and wellness services include physical health checkups with qualified nurses, hygiene lessons, and mental health services such as counseling and occupational therapy.

Family activities include family time from 9-10 pm, where debates, discussions, and activities occur. On Friday evenings, the whole village gathers in the amphitheater for village time, watching the news together and performing different talents. On Saturday, many volunteer in the farm or watch movies, and on Sundays, they have church services and clean their homes.

These activities support the mission of ASYV by providing a holistic education and uplifting family environment for at-risk students. Information technology is used for some activities, such as computer science courses, extracurricular activities in digital art, and in the health department, but there is significant room for expansion.

Staff

Anne Heyman, a native from South Africa, was the founder of the village (unfortunately passed away two years ago). She was committed to the Jewish principle of repairing the world by improving the life of others. She is survived by her husband, Seth Merrin, children Jason, Jonathan and Jenna who visit the village sporadically.

Jean-Claude Nkulikiyimfura is the Executive Village Director. He was promoted to the position

in 2015. He had a strong track record working in media and communication agencies before joining Agahozo-Shalom Youth Village. He is determined to be the voice to the voiceless in Rwanda.

Vincent Kalimba is the Village Director. He has more than ten years working with communities on employment and economic development. He is also the Founding Member and current Chair Member of AIESEC Rwanda (non-profit that creates positive impact through personal development for students). He is passionate to work with the youth at Agahozo-Shalom Youth Village. He joined ASYV in 2015.

Eric Tuyisenge is the evaluation and monitoring Officer and head of the MEAL team. He joined ASYV as Psychosocial Worker for the Health and Wellness team in 2013. He is avid in creating and implementing new data collection tools (Google forms, Microsoft Access databases and mobile applications) to monitor students from their arrival to the village until they graduate. He is focused on finding opportunities of improvement to individual departments in the village.

Aloys Kagimbura is the Academic Director of Liquidnet Family High School (LNFHS) and one of the most interested in the curriculum digitization for the school. He joined ASYV in 2009 as Math teacher and in January 2017 he was promoted to lead the school as its chief administrator focused on implementing academic policies and programs.

Deo Kabirigi is the Science and Technology Coordinator. He joined ASYV in 2008 and since then he has been working with determination to improve the IT infrastructure of the village. He is the most IT-savvy person in the village. He currently has two student interns who help him in any IT related task.

Administration and Finance:
Christine Icyitegetse is the Director of Finance.
Josiane Ishimwe is the Science Center Coordinator.
Caroline Kanyana is the Human Resources (HR) Coordinator.
Diane Kayiteta Kayitare is the Career Development Officer.

It also comprises two accountants, and one HR assistant.

Formal Education:
Comprises 26 teachers, an instructional coach, a laboratory technician and an administrative assistant.

Health and Wellness Center (HWC):
Theoneste Bugingo is the HWC Team leader.

It also comprises two nurses, and four psycho-social workers.

Informal Education:
Jean Claude Parisien is the Program Coodinator.

It also comprises 30 family mothers, one alumni relations officer, two acting grade coordinators and one leaning and development coordinator.

Fellows:

There are currently 8 long-term fellows from United States who have a contract with ASYV for one year. They have different responsibilities such as: communications, public health, photography training, English enrichment and career development.

Liquidnet:

The main donor and partner, supports the village by putting resources to have a positive impact in the world. Brian Walsh is the founder and executive director of Liquidnet for Good and a point of contact between Liquidnet and ASYV. The company usually sends an IT team every year to do maintenance and technology improvement for the village. Unfortunately, for the 2017 visit, there was no possible to bring someone with an IT background.

With regards to the interaction with technology, most of the administrative staff and teachers have their own laptops that bring daily to the village and school. Laptops and desktops can connect to Wi-Fi or Ethernet cable (in some offices). Most of them have an email address with the domain asyv.org and work with MS Office Suite easily. The MEAL team composed by Eric Tuyisenge and Shayna Saliman (fellow graduate) use on a daily basis different applications: Microsoft Access, CommCare and Google Forms. They will be the ones in charge of training new staff in the Salesforce platform.

Technology Infrastructure

Servers and computers

Equipment	Name	OS	Specification	IP	Location
Server	Earth	Windows Server 2008 R2 Standard	CPU : Intel ® Pentinium ®D CPU 2.80 GHz 2.79 GHz RAM:4.00 GB	192.168.5.6	School server room
Server	SKY	Windows Server 2008 R2 64 bit	CPU: Intel ®core ™ 2 CPU 6400 @ 2.13 GHz 2.13 GHz RAM: 4.00 GB	192.168.5.5	School server room
OLPC	ASYV-XO-001	SUGER &GNOME	One Laptop Per Child, RAM: 1GB	DHCP	Orange Club House
OLPC	ASYV-XO-002	SUGER &GNOME	One Laptop Per Child, RAM: 1GB	DHCP	Orange Club House
OLPC	ASYV-XO-003	SUGER &GNOME	One Laptop Per Child, RAM: 1GB	DHCP	Orange Club House
OLPC	ASYV-XO-004	SUGER &GNOME	One Laptop Per Child, RAM: 1GB	DHCP	Orange Club House
OLPC	ASYV-XO-005	SUGER &GNOME	One Laptop Per Child, RAM: 1GB	DHCP	Orange Club House
OLPC	ASYV-XO-006	SUGER &GNOME	One Laptop Per Child, RAM: 1GB	DHCP	Orange Club House
OLPC	ASYV-XO-007	SUGER &GNOME	One Laptop Per Child, RAM: 1GB	DHCP	Orange Club House
OLPC	ASYV-XO-008	SUGER &GNOME	One Laptop Per Child, RAM: 1GB	DHCP	Orange Club House
OLPC	ASYV-XO-009	SUGER &GNOME	One Laptop Per Child, RAM: 1GB	DHCP	Orange Club House
OLPC	ASYV-XO-010	SUGER &GNOME	One Laptop Per Child, RAM: 1GB	DHCP	Orange Club House
OLPC	ASYV-XO-011	SUGER &GNOME	One Laptop Per Child, RAM: 1GB	DHCP	Orange Club House
OLPC	ASYV-XO-012	SUGER &GNOME	One Laptop Per Child, RAM: 1GB	DHCP	Orange Club House
OLPC	ASYV-XO-013	SUGER &GNOME	One Laptop Per Child, RAM: 1GB	DHCP	Orange Club House
OLPC	ASYV-XO-014	SUGER &GNOME	One Laptop Per Child, RAM: 1GB	DHCP	Orange Club House
OLPC	ASYV-XO-015	SUGER &GNOME	One Laptop Per Child, RAM: 1GB	DHCP	Orange Club House
OLPC	ASYV-XO-016	SUGER &GNOME	One Laptop Per Child, RAM: 1GB	DHCP	Orange Club House
OLPC	ASYV-XO-017	SUGER &GNOME	One Laptop Per Child, RAM: 1GB	DHCP	Orange Club House
OLPC	ASYV-XO-018	SUGER &GNOME	One Laptop Per Child, RAM: 1GB	DHCP	Orange Club House
OLPC	ASYV-XO-019	SUGER &GNOME	One Laptop Per Child, RAM: 1GB	DHCP	Orange Club House
OLPC	ASYV-XO-020	SUGER &GNOME	One Laptop Per Child, RAM: 1GB	DHCP	Orange Club House

OLPC	ASYV-XO-021	SUGER &GNOME	One Laptop Per Child, RAM: 1GB	DHCP	Orange Club House
OLPC	ASYV-XO-022	SUGER &GNOME	One Laptop Per Child, RAM: 1GB	DHCP	Orange Club House
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OLPC	ASYV-XO-024	SUGER &GNOME	One Laptop Per Child, RAM: 1GB	DHCP	Orange Club House
OLPC	ASYV-XO-025	SUGER &GNOME	One Laptop Per Child, RAM: 1GB	DHCP	Orange Club House
OLPC	ASYV-XO-026	SUGER &GNOME	One Laptop Per Child, RAM: 1GB	DHCP	Orange Club House
OLPC	ASYV-XO-027	SUGER &GNOME	One Laptop Per Child, RAM: 1GB	DHCP	Orange Club House
OLPC	ASYV-XO-028	SUGER &GNOME	One Laptop Per Child, RAM: 1GB	DHCP	Orange Club House
OLPC	ASYV-XO-029	SUGER &GNOME	One Laptop Per Child, RAM: 1GB	DHCP	Orange Club House
OLPC	ASYV-XO-030	SUGER &GNOME	One Laptop Per Child, RAM: 1GB	DHCP	Orange Club House
OLPC	ASYV-XO-031	SUGER &GNOME	One Laptop Per Child, RAM: 1GB	DHCP	Orange Club House
OLPC	ASYV-XO-032	SUGER &GNOME	One Laptop Per Child, RAM: 1GB	DHCP	Orange Club House
OLPC	ASYV-XO-033	SUGER &GNOME	One Laptop Per Child, RAM: 1GB	DHCP	Orange Club House
OLPC	ASYV-XO-034	SUGER &GNOME	One Laptop Per Child, RAM: 1GB	DHCP	Orange Club House
Desktop	SCCL-001	Windows 7 professional 32 bit	CPU: Pentium ® Dual-core CPU @3.00GHz 3.00GHz RAM:3.00 GB	DHCP	Science learning center
Desktop	SCCL-002	Windows 7 professional 32 bit	CPU: Pentium ® Dual-core CPU @3.00GHz 3.00GHz RAM:3.00 GB	DHCP	Science learning center
Desktop	SCCL-003	Windows 7 professional 32 bit	CPU: Pentium ® Dual-core CPU @3.00GHz 3.00GHz RAM:3.00 GB	DHCP	Science learning center
Desktop	SCCL-004	Windows 7 professional 32 bit	CPU: Pentium ® Dual-core CPU @3.00GHz 3.00GHz RAM:3.00 GB	DHCP	Science learning center
Desktop	SCCL-005	Windows 7 professional 32 bit	CPU: Pentium ® Dual-core CPU @3.00GHz 3.00GHz RAM:3.00 GB	DHCP	Science learning center
Desktop	SCCL-006	Windows 7 professional 32 bit	CPU: Pentium ® Dual-core CPU @3.00GHz 3.00GHz RAM:3.00 GB	DHCP	Science learning center
Desktop	SCCL-007	Windows 7 professional 32 bit	CPU: Pentium ® Dual-core CPU @3.00GHz 3.00GHz RAM:3.00 GB	DHCP	Science learning center
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Desktop	SCCL-020	Windows 7 professional 32 bit	CPU: Pentium ® Dual-core CPU @3.00GHz 3.00GHz RAM:3.00 GB	DHCP	Science learning center
Laptops	ASYV-IT-LBPC001	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	Schoo Computer lab1&2
Laptops	ASYV-IT-LBPC002	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC003	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
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Laptops	ASYV-IT-LBPC023	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC024	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC025	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC026	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC027	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC028	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC029	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC030	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC031	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC032	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC033	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC034	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC035	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC036	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2

Laptops	ASYV-IT-LBPC037	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC038	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC039	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC040	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC041	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC042	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC043	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC044	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC045	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC046	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC047	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC048	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC049	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC050	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC051	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC052	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC053	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC054	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC055	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC056	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC057	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC058	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC059	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC060	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC061	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2

Laptops	ASYV-IT-LBPC062	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC063	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC064	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC065	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC066	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC067	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC068	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC069	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC070	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC071	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC072	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC073	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC074	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC075	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC076	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC077	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC078	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC079	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC080	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC081	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC082	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC083	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC084	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC085	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC086	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2

Laptops	ASYV-IT-LBPC087	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC088	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC089	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Laptops	ASYV-IT-LBPC090	Windows 10 Pro 64 bit	CPU: Intel ® Celeron ® 2957U @1.40 GHz 1.40 GHz RAM: 4.00 GB	DHCP	School Computer lab1&2
Desktop	ASYV-IT-STPC001	Windows 7 professional 64 bit	CPU: Pentium ® CPU G645T @2.5 GHz 2.5GHz RAM:2.00 GB	DHCP	School Computer lab3
Desktop	ASYV-IT-STPC002	Windows 7 professional 64 bit	CPU: Pentium ® CPU G645T @2.5 GHz 2.5GHz RAM:2.00 GB	DHCP	School Computer lab3
Desktop	ASYV-IT-STPC003	Windows 7 professional 64 bit	CPU: Pentium ® CPU G645T @2.5 GHz 2.5GHz RAM:2.00 GB	DHCP	School Computer lab3
Desktop	ASYV-IT-STPC004	Windows 7 professional 64 bit	CPU: Pentium ® CPU G645T @2.5 GHz 2.5GHz RAM:2.00 GB	DHCP	School Computer lab3
Desktop	ASYV-IT-STPC005	Windows 7 professional 64 bit	CPU: Pentium ® CPU G645T @2.5 GHz 2.5GHz RAM:2.00 GB	DHCP	School Computer lab3
Desktop	ASYV-IT-STPC006	Windows 7 professional 64 bit	CPU: Pentium ® CPU G645T @2.5 GHz 2.5GHz RAM:2.00 GB	DHCP	School Computer lab3
Desktop	ASYV-IT-STPC007	Windows 7 professional 64 bit	CPU: Pentium ® CPU G645T @2.5 GHz 2.5GHz RAM:2.00 GB	DHCP	School Computer lab3
Desktop	ASYV-IT-STPC008	Windows 7 professional 64 bit	CPU: Pentium ® CPU G645T @2.5 GHz 2.5GHz RAM:2.00 GB	DHCP	School Computer lab3
Desktop	ASYV-IT-STPC009	Windows 7 professional 64 bit	CPU: Pentium ® CPU G645T @2.5 GHz 2.5GHz RAM:2.00 GB	DHCP	School Computer lab3
Desktop	ASYV-IT-STPC010	Windows 7 professional 64 bit	CPU: Pentium ® CPU G645T @2.5 GHz 2.5GHz RAM:2.00 GB	DHCP	School Computer lab3
Desktop	ASYV-IT-STPC011	Windows 7 professional 64 bit	CPU: Pentium ® CPU G645T @2.5 GHz 2.5GHz RAM:2.00 GB	DHCP	School Computer lab3
Desktop	ASYV-IT-STPC012	Windows 7 professional 64 bit	CPU: Pentium ® CPU G645T @2.5 GHz 2.5GHz RAM:2.00 GB	DHCP	School Computer lab3
Desktop	ASYV-IT-STPC013	Windows 7 professional 64 bit	CPU: Pentium ® CPU G645T @2.5 GHz 2.5GHz RAM:2.00 GB	DHCP	School Computer lab3
Desktop	ASYV-IT-STPC014	Windows 7 professional 64 bit	CPU: Pentium ® CPU G645T @2.5 GHz 2.5GHz RAM:2.00 GB	DHCP	School Computer lab3
Desktop	ASYV-IT-STPC015	Windows 7 professional 64 bit	CPU: Pentium ® CPU G645T @2.5 GHz 2.5GHz RAM:2.00 GB	DHCP	School Computer lab3
Desktop	ASYV-IT-STPC016	Windows 7 professional 64 bit	CPU: Pentium ® CPU G645T @2.5 GHz 2.5GHz RAM:2.00 GB	DHCP	School Computer lab3
Desktop	ASYV-IT-STPC017	Windows 7 professional 64 bit	CPU: Pentium ® CPU G645T @2.5 GHz 2.5GHz RAM:2.00 GB	DHCP	School Computer lab3

Desktop	ASYV-IT-STPC018	Windows 7 professional 64 bit	CPU: Pentium ® CPU G645T @2.5 GHz 2.5GHz RAM:2.00 GB	DHCP	School Computer lab3
Desktop	ASYV-IT-STPC019	Windows 7 professional 64 bit	CPU: Pentium ® CPU G645T @2.5 GHz 2.5GHz RAM:2.00 GB	DHCP	School Computer lab3
Desktop	ASYV-IT-STPC020	Windows 7 professional 64 bit	CPU: Pentium ® CPU G645T @2.5 GHz 2.5GHz RAM:2.00 GB	DHCP	School Computer lab3
Desktop	ASYV-IT-STPC021	Windows 7 professional 64 bit	CPU: Pentium ® CPU G645T @2.5 GHz 2.5GHz RAM:2.00 GB	DHCP	School Computer lab3
Desktop	ASYV-IT-STPC022	Windows 7 professional 64 bit	CPU: Pentium ® CPU G645T @2.5 GHz 2.5GHz RAM:2.00 GB	DHCP	School Computer lab3
Desktop	ASYV-IT-STPC023	Windows 7 professional 64 bit	CPU: Pentium ® CPU G645T @2.5 GHz 2.5GHz RAM:2.00 GB	DHCP	School Computer lab3
Desktop	ASYV-IT-STPC024	Windows 7 professional 64 bit	CPU: Pentium ® CPU G645T @2.5 GHz 2.5GHz RAM:2.00 GB	DHCP	School Computer lab3
Desktop	ASYV-IT-STPC025	Windows 7 professional 64 bit	CPU: Pentium ® CPU G645T @2.5 GHz 2.5GHz RAM:2.00 GB	DHCP	School Computer lab3
Desktop	ASYV-IT-STPC026	Windows 7 professional 64 bit	CPU: Pentium ® CPU G645T @2.5 GHz 2.5GHz RAM:2.00 GB	DHCP	School Computer lab3
Desktop	ASYV-IT-STPC027	Windows 7 professional 64 bit	CPU: Pentium ® CPU G645T @2.5 GHz 2.5GHz RAM:2.00 GB	DHCP	School Computer lab3
Desktop	ASYV-IT-STPC028	Windows 7 professional 64 bit	CPU: Pentium ® CPU G645T @2.5 GHz 2.5GHz RAM:2.00 GB	DHCP	School Computer lab3
Desktop	ASYV-IT-STPC029	Windows 7 professional 64 bit	CPU: Pentium ® CPU G645T @2.5 GHz 2.5GHz RAM:2.00 GB	DHCP	School Computer lab3
Desktop	ASYV-IT-STPC030	Windows 7 professional 64 bit	CPU: Pentium ® CPU G645T @2.5 GHz 2.5GHz RAM:2.00 GB	DHCP	School Computer lab3
Desktop	ASYV-IT-STPC031	Windows 7 professional 64 bit	CPU: Pentium ® CPU G645T @2.5 GHz 2.5GHz RAM:2.00 GB	DHCP	School Computer lab3
Laptops	ASYV-IT-PC001	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC002	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC003	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC004	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC005	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC006	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House

Laptops	ASYV-IT-PC007	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC008	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC009	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC010	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC011	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC012	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC013	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC014	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC015	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC016	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC017	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC018	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC019	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC020	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC021	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC022	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC023	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC024	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC025	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC026	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House

Laptops	ASYV-IT-PC027	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC028	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC029	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC030	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC031	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC032	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC033	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC034	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC035	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC036	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC037	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC038	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC039	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Laptops	ASYV-IT-PC040	Windows 7 professional 64 bit	CPU : Intel ® Core ™2 Duo CPU PP880 @ 2.66GHz 2.67 GHz RAM: 4.00GB	DHCP	Orange Club House
Desktop	RECORDINGSTUDIO01	OS X Yosemite version 10.10.3	CPU: 3.2Ghz Intel Core i3 RAM: 4GB HDD: 1TB, SN: W810104QHJW	DHCP	Recording Studio
Desktop	MEDIALABPC-001	Windows 10 Pro 64 bit	CPU: 3.2 Ghz, RAM: 4GB	DHCP	Media lab
Desktop	MEDIALABPC-002	Windows 10 Pro 64 bit	CPU: 3.2 Ghz, RAM: 4GB	DHCP	Media lab
Desktop	MEDIALABPC-003	Windows 10 Pro 64 bit	CPU: 3.2 Ghz, RAM: 4GB	DHCP	Media lab

Wireless equipment

Equipment	Role	IP	Location
Administration	Router	192.168.005.110 DHCP	Administration
AdministrationAP Ext	Access Point	192.168.005.118 DHCP	Administration
AdministrationAP Int	Access Point	192.168.005.125 DHCP	Administration Conference Room
BackBone	Router	192.168.005.004 41.197.41.2/29	School S1
BackBone AP	Access Point	192.168.005.003	School Roof
BackBone Wanderbox	Router	192.168.005.001/22 41.197.41.4	School server room
DiningHall	Uplink	192.168.005.094 DHCP	Dining hall
DiningHallAP	Access Point	192.168.005.098 DHCP	Dining hall
DoFE-IFE	Router	DHCP 192.168.30.1	Informal Education Directors Office
Guest2	Uplink	10.0.5.68	Guest House 2
Guest2AP	Access Point	10.0.5.69	Guest House 2
Guest3NE	Uplink - Access Point	172.21.0.30	Guest House 3 NE
Guest3NW	Access Point	172.21.0.91	Guest House 3 NW
GuestHouse01	Master-Client	172.28.0.48	Guest House 1
House02	Access Point	172.21.0.20	House 02
House05	Uplink	172.21.0.39	House 05
House05da	Access Point	172.21.0.28	House 05
House05oa	Access Point	172.21.0.10	House 05
House11	Uplink - Access Point	172.21.0.6	House 11
House13	Uplink	172.21.0.42	House 13
House13AP	Access Point	172.21.0.54	House 13
House16	Uplink	172.21.0.72	House 16
House16AP	Access Point	172.21.0.75	House 16
House21	Uplink	172.21.0.57	House 21
House21AP	Access Point	172.21.0.61	House 21
House23	Uplink	172.21.0.24	House 23
house24	Uplink - Access Point	172.21.0.49	House 24
House25	Uplink - Access Point	172.21.0.83	House 25
House29	Uplink	172.21.0.74	House 29 SW
House29 AP	Access Point	172.21.0.44	House 29 NE
House46	Uplink	192.168.005.120 DHCP	House 46
House46 AP	Access Point	192.168.004.023	House 46 Inside
House46b	Access Point	10.0.5.65	House 46
Huawei B681 3G Gateway	Router/Access Point	192.168.001.001	Kigali Apartment

LearningCenter	Uplink	192.168.005.129 DHCP	Learning Center
LearningCenterNW	Access Point	10.0.5.61	Learning Center
LearningCenterSE	Access Point	10.0.5.62	Learning Center
MainGate	Client	192.168.100.005	Main Gate
Orange Clubhouse	Client	172.28.0.50	Orange - Student Resource
Orange Clubhouse AP	Uplink - Access Point	172.28.0.51	Orange - Student Resource
Residence	Uplink	192.168.005.096 DHCP	Water Tower
ResidenceAP	Access Point	192.168.005.112 DHCP	Water Tower
Ruckus Zone Director Management Controller	Ruckus Zone Director Management Controller	192.168.005.002	Unmanaged
School AP	Access Point	192.168.006.067 DHCP	School Roof
School Dp	Client	DHCP	School Dept Princ Office
School Dp AP	Access Point	DHCP 192.168.110.001	School Dept Princ Office
TVWS Radio Basestation	Access Point	192.168.005.012 DHCP	School server room
School Router	Uplink - Access Point	-	School S1
TP-LINK TL-SF1024D	Switch	-	Administration Conference Room
TP-LINK TL-SF1024D	Switch	-	School S1
TrendNet TEG-S224	Switch	-	SC-Comms
TrendNet TEG-S224	Switch	-	SC-Comms
Ruckus Wireless Zoneflex AP	Ruckus Wireless Zoneflex AP	-	Unmanaged
Ruckus Wireless Zoneflex AP	Ruckus Wireless Zoneflex AP	-	Unmanaged
Ruckus Wireless Zoneflex AP	Ruckus Wireless Zoneflex AP	-	Unmanaged
Ruckus Wireless Zoneflex AP	Ruckus Wireless Zoneflex AP	-	House 46 East
Ruckus Wireless Zoneflex AP	Ruckus Wireless Zoneflex AP	-	Water Tower
Ruckus Wireless Zoneflex AP	Ruckus Wireless Zoneflex AP	-	Water Tower
Ruckus Wireless Zoneflex AP	Ruckus Wireless Zoneflex AP	-	Water Tower
Ruckus Wireless Zoneflex AP	Ruckus Wireless Zoneflex AP	-	House 46 South
Ruckus Wireless Zoneflex AP	Ruckus Wireless Zoneflex AP	-	Unmanaged
LinkSys WRT54GL	Router	-	House 19
Ruckus Wireless Zoneflex Bridge AP	Ruckus Wireless Zoneflex Bridge AP	-	Water Tower East
Ruckus Wireless Zoneflex Bridge AP	Ruckus Wireless Zoneflex Bridge AP	-	House 44
Ruckus Wireless Zoneflex Bridge AP	Ruckus Wireless Zoneflex Bridge AP	-	House 13

Ruckus Wireless Zoneflex Bridge AP	Ruckus Wireless Zoneflex Bridge AP	-	House 46
Ruckus Wireless Zoneflex Bridge AP	Ruckus Wireless Zoneflex Bridge AP	-	Water Tower South
TVWS Radio CPE 846	Client	-	School S1
TVWS Radio CPE 847	Client	-	School S1
ZyXEL PoE Switch	Switch	-	Unmanaged
ZyXEL PoE Switch	Switch	-	Unmanaged
ZyXEL PoE Switch	Switch	-	Unmanaged
ZyXEL PoE Switch	Switch	-	Unmanaged

Internet Connectivity

Vsat Antenna (located at the school):
Was the first equipment used to get internet to the village via satellite. The signal was rather poor and the internet connection shut down constantly.

Wimax Antenna (across the village):
Was the second equipment the ASYV used to get internet in the village. Antennas were installed across the village and the school to get wireless connection from a town called Rwamagana. However, when the energy power went out in the town, the village received no connection therefore the school and administration suffered the consequences until the electricity was restored.

Solar Panels:
Were installed in 2016 in a portion of land behind LNFHS. The GigaWatt Global company installed the solar panels. The panels needed fiber optic cable to monitor their current power. Therefore, it was brought from the main road (5.6 miles away) to ASYV and installed using overhead distribution lines. ASYV saw an advantage and took two nodes from the cable to connect them into the server room at school. From the two nodes, the ISP provided an extension to connect the rest of the village to internet.

Fiber optic cable:
Is connected throughout the school, administration offices and some guest houses (where fellow graduates live).

Internet Bandwidth:
Currently 20 Mbps since 2016, it was doubled it two years ago. The administration and IT department is working hard to achieve their goal of getting 60 Mbps.

Technology Management

Deo Kabirigi (Science and Technology Coordinator) is the person in charge of managing and ensuring an appropriate use of the technology infrastructure of the village. Nowadays, he is supported by two interns who are students that have just graduated from LNFHS and are transitioning to university, an internship or a job; interns have a high turnover rate. To log problems, a form is filled out in the IT office, but Deo is usually the point of contact to solve any kind of problem. Due to the fact that the workload of the IT department is critical and there is no support

from other departments, the planning tasks are occasionally neglected and it takes a considerable amount of time to achieve any goal. Therefore, there is a noticeable need to increase the number of employees in the IT department.

Server backups are scheduled in the system. Some monthly backups are done manually with external hard drives (3 TB each). It is a time consuming task. There is currently one server (Sky) that has been used to do full backups and daily incremental backups of every desktop and laptop from school. However, it is important to carry out maintenance and updates to this server in order to have it running efficiently. The server is ten years old and has a limited RAM capacity (2 GB). One of the servers downloads Windows updates, and distributes them to all the computers in the local network. Each computer in ASYV automatically updates other software and virus definitions when they are connected to the Internet.

Liquidnet provides external support by scheduling visits every year for maintenance. A group of IT specialists will come next July in order to do a general maintenance of the technology infrastructure.

Technology Planning

Deo Kabirigi is in charge of the technology planning at ASYV. He works hard to improve the current infrastructure. Consequently, he studies different opportunities for improvement and, once he has gathered enough information, creates business cases to present to the village directors and board members. Nowadays, the current planning for the village is to embed technology into the classroom to foster opportunities for teaching and learning. To achieve this goal ASYV would want the following:

- 22 Smart classrooms with all necessary tools and equipment
- Digitized educational curriculum
- Cloud storage and cloud-based backup system
- One projector per classroom
- Equipment set for video conferencing
- Smart boards
- Increased Internet bandwidth (up to 60 Mbps)
- Capacity building and online training platform

Communication

Information is shared internally in several ways. Face-to-face communication is common, and is generally the most reliable form of information sharing. Email is used frequently to communicate and to share documents (normally Excel or Word). Many documents are paper-based. Phone calls and text messages or Whatsapp are occasionally used. ASYV has an intranet, but it isn't used. External communication is done via email, a video-calling platform called BlueJeans, and by phone call or text message. External communications with donors, visitors, and volunteers is primarily handled by a New York office, and there are no issues with this communication. Communication with families and other stakeholders in Rwanda is primarily through phone calls.

Files are shared internally by email attachment or occasionally with paper documents. All staff have email accounts @asyv.org. Wifi is available, though it is slow. ASYV has a website at asyv.org which is very effectively targeted towards potential donors and visitors and is regularly updated. It

also has a website at elearning.lnfhs.asyv.org which is directed towards students and teachers, but which does not contain much information, is underutilized, and is not regularly updated.
There are no mechanisms in place for data security; the wifi is not secured, and files are not shared over a secure platform.

Aside from computer and phone communication, paper-based communication is common but is very slow and inefficient. Reports from family caretakers ("mamas") are normally first written on paper, and then typed into a computer. Likewise, grades are first written and then typed. Since the school has 523 students who each take up to 9 classes, the process of transferring data from paper to the computer is very long, slow, and error-prone.

In general, ASYV has sufficient communication tools, with the exception of a cohesive and comprehensive internal database to store and access all student data. However, these tools can be improved upon by improving security, transitioning from paper-based to online forms and data collection tools, and by improving internet access, speed, and general computer literacy.

Information Management

Information is primarily managed electronically at ASYV, but they do not currently have a consistent system for managing data. Data is collected in a variety of ways – on paper, through Google forms, and via Microsoft Access, among other ways – and this data has to be collated and transferred to Excel in order for the administrative team to analyze and manage the data. All information eventually ends up in a fairly organized, logical location but it takes a long time to clean data and transfer it to Excel. ASYV also has a large quantity of critical data, since they collect important data on each of 523 students several times a year. Improving their methods of information management is therefore an important goal for ASYV.

Current databases include an Access database built by Eric Tuyisenge, the Monitoring and Evaluation Officer, and various Excel files built by staff in the monitoring and evaluation department, health and wellness department, and at the school. Since information comes into ASYV in many different forms, they have not been able to automate information management processes. The main problem is thus one of efficiency and consistency. With the current information management system, a lot of time is wasted and some time-sensitive information is not dealt with effectively. Improving information management will allow ASYV to more closely monitor students' progress and intervene where and when necessary.

Business Systems

ASYV has a well-functioning finance department. Christine Icyigetse is the Director of Finance and the department includes two other accountants, Janet Mutesi and Noella Nyamuniga. They use codiPAIE to manage payroll, salaries, and staff information. They can also reimburse staff for expenses. Accounting systems meet all current requirements and do not currently need improvement.

II. Improving school recordkeeping and course material availability through curriculum digitization

Motivation

ASYV primarily uses paper-based records and course materials. This system is inefficient and ineffective. Teachers find it difficult and time-consuming to record attendance, and often do not record it at all, leading to higher rates of absenteeism among students and making it very difficult to track potential behavioral issues. Grades are recorded on paper as required, but the process is very slow, and requires the single administrative assistant to transfer all 500+ students' grades in 9 classes to the computer each term. This delays the return of grades to students and teachers, creates needless work, wastes resources, and delays tracking of students' academic progress. Finally, course materials including books, lessons, quizzes, and sample exams are only available in physical formats. These materials are often more expensive, are only available to students while they are at school, and may be available in limited quantities.

Curriculum digitization presents an excellent opportunity to solve these problems. The goal of digitizing the curriculum is (1) to improve students' academic performance by expanding access to course materials, (2) to improve the school's recordkeeping in order to more efficiently monitor student performance, and (3) to allow the school to track data over time in order to more effectively intervene with students who may face academic issues.

ASYV highly values the academic success of its students and its ability to monitor students' academic and behavioral progress through data collection. Its current system wastes staff time, uses resources inefficiently, and makes it difficult to track students' progress. Introducing a digitized curriculum system will improve all of these issues, and allow ASYV to meet their mission of enabling orphaned and vulnerable youth to realize their potential by providing a safe and secure living environment, health care, education and necessary life skills.

In order to digitize the curriculum, several e-learning platforms were examined, including Moodle and Sycamore. Moodle was determined to be the best platform for ASYV's requirements, as it allows for the formation of many different courses, has powerful attendance and grading functions, and can host a wide variety of course materials, including lessons, quizzes, and books. Solutions were evaluated based on their capacity to fulfill all of ASYV's requirements, their ability to be used in light of ASYV's technical constraints on server capacity and internet speed, their simplicity and ease-of-use, and their cost.

After selecting Moodle as the e-learning platform, three hosting methods were considered: hosting via ASYV's in-house server, Moodle Cloud, and a Virtual Private Server (VPS). The robustness of the server, capability to support large numbers of users, functionality of Moodle, and cost were compared across each option. The consultants recommended a VPS due to its ability to support large numbers of users and content at relatively low cost. This hosting method was implemented with support from ASYV's administration.

Outcomes

Summary

At the end of the consulting period, Moodle had been installed onto a VPS and customized for ASYV's use. Course pages were created for all 24 courses ASYV offers, and user accounts were created for 55 students, three teachers, and two administrators. Three teachers and two administrators were trained to full proficiency in Moodle, and simplified documentation was created to help reinforce this training. A long-term plan was created to train more teachers and add more course content.

The outcomes of this project will be to improve students' exam scores by increasing access to course materials and improving critical thinking skills, to allow teachers to track attendance daily and thus decrease student absenteeism, and to allow teachers to assign more graded work and to more quickly enter student grades in order to better track student progress. These outcomes will be measured by tracking student and teacher usage of Moodle and student exam scores.

Activities

- Documented requirements for curriculum digitization, including desired functions and technology limitations
- Installed Moodle as the curriculum digitization platform
- After consideration of 3 hosting options, purchased VPS with support from ASYV administrators, and installed Moodle to VPS at the website moodle-lnfhs.org
- Customized Moodle interface and installed add-ons for attendance and science/math problem solving
- Created course pages for 24 courses
- Trained 3 teachers to full proficiency in use of Moodle
- Trained 2 administrators in Moodle "upkeep," such as uploading student and course information
- Enrolled 55 students in courses in ICT, physics, and entrepreneurship
- Created spreadsheet to allow administrators to quickly upload the remaining 468 students' information
- Created spreadsheet to allow administrators to quickly add and upload new courses if necessary
- Supported teachers in adding course materials to ICT, physics, and entrepreneurship courses
- Created detailed documentation at introductory level for how to use Moodle as a teacher and administrator
- Established long-term plan for sustainability by scheduling teacher training workshop in which teachers will be incentivized to upload material for one school term

Outputs

- One-year VPS was purchased through InMotion
- Moodle learning platform was installed and customized for ASYV's needs
- 24 course pages were created
- 55 students were enrolled in 3 courses (computer networking, entrepreneurship, physics)

- Simplified Moodle documentation was created for 5 administrative functions and 11 teaching/content uploading functions
- 3 teachers were trained to full proficiency in use of Moodle and have ability to train others
- 2 administrators were trained in administrative aspects of Moodle (uploading students, adding new courses and teachers, etc.)
- Limited course materials were uploaded to physics, entrepreneurship, and computer networking courses
- Spreadsheets were created to allow administrators to easily upload more students and courses
- Teacher training workshop was scheduled for early January to expand Moodle usage to more teachers and incentivize upload of more course materials

Outcomes
As students had not yet begun using Moodle at the end of the consulting period, these outcomes have not yet been confirmed. Outcomes should be measured at the end of the first term of student use to more effectively determine the success of the project and its sustainability.

- Moodle's efficient attendance-taking system allows teachers to track daily attendance for all students, thus decreasing student absenteeism
- Increased access to course materials will improve students' exam scores
- Increased access to class notes will allow teachers to spend more class hours on critical thinking and active learning activities
- Students' critical thinking abilities will improve due to improved use of class hours and access to Moodle activities which reinforce learning
- Teachers will assign more graded activities on Moodle using auto-grading functionality, which will improve their ability to track students' learning progress
- Students will receive feedback on graded assignments and exams more quickly, which will improve their academic performance

Indicators
- Number of attendance records submitted per day
- Number of unexcused absences per day
- Number of grades entered per student
- Number of days between student submission of work and return of grade
- Student midterm and final exam scores

Configuration
Moodle v. 3.1.1 standard version was installed (https://download.moodle.org/) onto a VPS (virtual private server) hosted by InMotion through a wizard called Softaculous. It uses the standard Boost theme with minor cosmetic CSS customization. The software prerequisites that were installed to put Moodle running onto the server were: PHP 7.0, Apache as web server and MariaDB as database server. The following are the hardware specifications of the server that InMotion uses:

Processor: Dell PowerEdge r730
System: Intel(R) Xeon(R) CPU E5-2670 v3 @ 2.30GHz
Speed: 48 CPU Cores

Storage: 16TB SSD
RAM: 384GB

In addition, the dedicated resources included with the VPS-1000 package that will be used to host the Moodle site are:

RAM: 4.00 GB
Storage: 75GB
Bandwidth: 4TB
IP Addresses: 3

Current content includes 24 course pages. Three courses, physics, computer networking, and entrepreneurship, have class materials uploaded. The course pages were configured by the consultants, while the class materials were added by the respective teachers of each course. Administrators have been trained to upload and edit any content or users that were originally uploaded by the consultant. Trainings given to teachers and administrators had very good results, and suggest that the project will be fully sustainable.

Risks to Sustainability
The primary risk to sustainability is that a Moodle workshop will not be organized or will not have sufficient attendance or interest. This workshop will be vital to the project's long-term success, as it will train additional teachers in the use of Moodle, thus improving student access.

Other risks include trained teachers leaving the school, decreases in internet availability or speed, issues scheduling student use of limited computer resources, weak computer skills of some teachers, and insufficient training for students to proficiently use Moodle.

All of these risks could prevent some or all outcomes from being reached. However, significant buy-in from ASYV teachers and administrators suggests that these risks will be avoided.

Recommendations

1. Host Moodle workshop for teachers in January: This workshop will be vital to not only continue but expand the usage of Moodle at ASYV. The workshop will greatly expand the number of teachers who are proficient in the platform, the amount of course materials available, and the access of and use of the platform to students. The workshop should be hosted at ASYV in early January 2018 before the first term of the 2018 school year begins. The workshop should be at least three days long, to ensure that teachers have sufficient time to both be trained and to upload a significant amount of course materials onto the platform. The workshop will be hosted by the teachers who were trained by the consultants, who have been prepared to train others in Moodle. It should be supported by school administrators, who will organize the workshop, advertise it to teachers, support the teacher trainers with any materials they may need, and emphasize its importance to all teachers. The consultants recommend that ASYV consider incentivizing participation in the workshop with an either monetary or social incentive given to teachers who upload materials for at least one full school term during the workshop. This incentive may help motivate teachers to participate more fully in the workshop.

2. Devote class time to training students in use of Moodle: Students must have some training in the use of Moodle, particularly in how to access course materials and how to complete assignments and quizzes. Some class time should be devoted to this training to ensure students are not unfairly penalized due to confusion over Moodle, rather than over course content. The consultants recommend that one class period of the IT class be devoted to Moodle in the first term of 2018. This class should teach students (1) how to log on, (2) how to change their password and user information, (3) how to access the courses in which they are enrolled, (4) how to access the content in each of these courses, and (5) how to answer and submit assignments and quizzes.

3. Establish long-term hosting plan for Moodle and migrate if necessary: The current VPS plan expires after one year. After that one year, ASYV has the option of either renewing the plan, which will be slightly more expensive as the current plan was discounted; of uploading Moodle to the in-house server, which must be upgraded before this hosting option becomes viable; or of subscribing to Moodle Cloud, which the consultants do not recommend due to limitations on the number of allowed users. The consultants recommend that in June 2018, ASYV does a cost-benefit analysis of continuing to host on a VPS or hosting on the in-house server. This analysis should consider cost, ability to support approximately 600 users, speed, robustness, and accessibility. By the end of June 2018, ASYV administrators should make a decision on which hosting option is preferable. If the VPS is chosen, administrators will need to renew the hosting plan. If the in-house server is chosen, Moodle will need to be migrated from the VPS to the in-house server with all added content remaining intact.

4. Check for updates to Moodle on the first of every month: To ensure the security of student data and optimal functionality of Moodle, the platform should be regularly updated. Trained administrators Aloys and Biira or Science and Technology Coordinator Deo should check Moodle's website (https://download.moodle.org/releases/latest/) on the first of every month to ensure the platform is running on the latest update.

5. Purchase more internet-accessible devices to expand student access to Moodle: While students will be able to make use of Moodle with the current number of devices, expanding access will help with scheduling difficulties and will allow students to access course materials outside of just the computer labs. Moodle has an application which allows it to be used on smartphones and tablets, so ASYV should explore the cost-effectiveness of these devices as well as more computers.

6. Improve Internet speed/bandwidth: The consultants recognize that improving Internet speed may face budgetary constraints and overall technical constraints from ASYV's location, but recommend that ASYV explore options for improving speed, as they will greatly improve student and teacher access to Moodle.

III. Implementing a mobile data collection platform as main data gathering tool for analysis and information sharing

Motivation

The MEAL (monitoring, evaluation, assessment, and learning) team has been using disparate data gathering tools such as Google Forms, Excel files and Microsoft Access questionnaires. However, there was an unmet need to collect data offline and on the ground. Client-facing community workers who work in rural areas in Rwanda required a new solution, first, to be able to easily use a tool that could be synchronized with a server afterwards whenever they had internet connection, and, second, that was user-friendly with a low learning curve that could be handled by any worker in the village. After researching and benchmarking with the team, the suggested tool for collecting, analyzing and communicating data to other departments in the village was Commcare.

Commcare is an open-source mobile platform created by Dimagi, a company headquartered in Cambridge, Massachusetts, designed for data collection. Applications are built through the website www.commcarehq.org which is managed by the company on a cloud-based server, and deployed afterwards via the Commcare app in mobile devices. Before the arrival of the consultants, the village started to use a free software plan that gave them 10 user licenses, but limited features and capabilities. The MEAL team deployed its first mobile app (with a look of an e-form) for their Mosquito Net Use survey in June 2017. The team was also in charge of training staff members who could administer the form by using new branded Kindle Fire tablets. After feeling comfortable with the usage of the tool and having excellent results after the launch of the first app, the team viewed the possibility of continuing to use Commcare for other surveys and questionnaires.

Upon the consultant's arrival to the village, the management team (including the MEAL team) suggested to include in the work plan support for the adoption of Commcare. The head of the team wanted to explore different options in the market as well. The other solutions studied alongside Commcare were: SurveyMonkey, Epi Info and Magpi. For benchmarking, there were three variables taken into account: usability, scalability and affordability. Commcare was a suitable option compared to its competitors since staff members had been already exposed to the tool in the past. Moreover, through conversations with Ryan Hartford (rhartford@dimagi.com), the Partnerships Director from Dimagi, the consultants achieved a good deal for an upgrade to the Standard package. Commcare thus became the main tool for data gathering, analysis and information sharing.

Commcare platform is a great opportunity for ASYV for the following reasons:

1. The platform allows users to collect data offline and on the ground in any province of Rwanda
2. The platform is user-friendly and can be programmed by someone with basic knowledge of logic programming and conditional statements
3. The Standard package offers helpful features and add-ons for reporting and dashboard design
4. The platform offers forums and tutorials that can be accessed and completed by someone interested in the usage of the tool

5. Mobile apps designed through Commcare can be installed in the Android and Kindle devices that the village has
6. The platform is scalable to more users by paying a small fee per new user (2 USD per month); the package can also be upgraded to a more robust one if necessary.

Outcomes

Summary

On a daily basis, the consultants and the MEAL team tested the platform to explore features such as reporting and analytics, app creation, and management. At the end of the consulting period, four mobile apps were designed to collect data related to alumni, recruitment, family monitoring and mosquito net use. Staff member ("mamas," psychosocial workers, etc.) in the village were also trained with a high rate of acceptance towards the platform and the interface of the mobile apps. Some users whose previous level of mobile app usage was low quickly learned how to execute and save surveys and synchronize them with the server afterwards. The MEAL team was also trained on programming logic and advanced calculations that can be applied in the future for new apps.

The outcomes of the Commcare project are to improve information sharing between individual departments and the management team by automating reporting and by dashboard linking with Excel, and to allow interested parties to better understand metrics and results from the forms and surveys administered by the MEAL team. In addition, with the new package (Standard) the platform can be used by up to 50 concurrent users enabling the MEAL team to gather more data in the village and on the ground.

Activities

- Conversed with Rishabh Rath, Development and Partnerships Manager, Ryan Hartford, Partnerships Director, and Courtney Kelly, Director of Global Services, from Dimagi
- Negotiated a 20% discount rate for the Standard package through a 12-month agreement
- Compared other solutions in the market through a benchmarking study using three indicators: usability, scalability and affordability
- Trained the head of MEAL team, Eric Tuyisenge, in functions and calculations with the logic syntax used in Commcare
- Programmed recruitment, alumni and family monitoring mobile apps

Outputs

- Included in the package a feature for report building as add-on to the tool
- Created and programmed the recruitment, alumni and family monitoring mobile apps
- Trained the head of MEAL team in the use of advance logic, functions and calculations
- Designed an Excel template to have fields and values from Commcare forms and surveys in a more readable way to be input in Salesforce
- Designed an Excel dashboard with real data collected from the recruitment app to communicate the results to management team presented visually

Outcomes

- Commcare platform allows MEAL team to more efficiently manage their forms and surveys, thus improving organization and reducing complexity in administering their baseline and end line materials
- Commcare platform allows MEAL team to reduce by 40% time in analyzing and communicating results to management team and individual departments
- Data integration from only Commcare (as main data gathering tool) to Salesforce reduces by 20% the time the MEAL team takes in transforming and cleaning data that is spread in other applications (e.g. Excel, Google Forms) that may not be needed from this point forward

Indicators

- Number of users logging into the platform
- Average time it takes to collect data
- Average time it takes to analyze data
- Average time it takes a user to start and finish a form or survey
- Average time it takes between data collection and meeting with departments and management team to share results
- Total time that MEAL team takes on data manipulation per week

Risk to Sustainability

The sustainability of the project is subject to the increase in learning new and more advanced features of the tool, and the ability to make people in the village accountable in this project. In the last two months, the MEAL team has explored the essentials of Commcare; nevertheless, to get the most out of the tool it is important to go in depth and continue the online learning through Dimagi academy (https://academy.dimagi.com) and forums. Sustainability will also depend on the MEAL department's budget for next year to be able to renew the Standard Package. Furthermore, Eric Tuyisenge is the only person accountable and trained in using the platform. Commcare risks falling into complete disuse if Eric Tuyisenge switches to a new position or leaves the village. For this reason, there has to be another group of individuals trained who can also be ultimately responsible for it.

Recommendations

1. Set up a training session with the M&E (Monitoring and Evaluation) fellow focused on application design and programming: The current fellow, Shayna Saliman, who supports Eric Tuyisenge in all duties of the MEAL team will finish her contract with the village in November 2017. Therefore, it is important that she understands the platform to be able to train the next M&E fellow who will arrive in December as part of the onboarding training.

2. Set up a committee able to train new users: As the platform will expand to new users, the need for delivering a training plan should be taken into account. The involvement of end-users to be accountable for the success of the project will lead this project to branch out to other staff members in the village. The training plan should be flexible enough to accommodate a small or a big group of new users. The consultants recommend following classroom-based methods, as

these methods are followed with other workshops in the village, and to assign a group of individuals that have excelled at the use of the app while collecting data previously.

3. Standard Package renewal for 2018: The current plan that is being used by the MEAL team will expire on June 30th, 2018. For the sustainability of the project in the long term, it is essential to make the use of the tool recurrent by renewing the package. The MEAL team will have to allocate a portion of next year's budget to cover the Commcare fee.

4. Kindle Fire tablets acquisition to expand number of concurrent users: One of the advantages of signing up for the Standard package of Commcare is to be able to have up to 50 mobile users that could be accessing an app at same time. However, the village currently has only eight Kindle Fire tablets available. It is important to consider buying more devices in order to collect more data and shorten the time spent in data collection on the ground; the previous recruitment survey took three weeks to collect data, but with the possibility of having more devices in the future and more staff trained, the time spent in data gathering will decrease considerably.

IV. Integrating collected data in the village into one database stored in Salesforce

Motivation

Since the beginning of the current year, the MEAL (monitoring, evaluation, assessment, and learning) team, which is in charge of programmatic monitoring and evaluation within the village, saw the need to create a village-wide database that could be the hub of all data collected by individual departments. The team wanted a system that could allow them to integrate data from disparate sources into one homogenized data set. The main challenge the team faced was the cleaning and transformation of data that is gathered through different collection tools such as Google forms, Microsoft Access questionnaires, Excel files, and Commcare. They also lacked a tool that could help them synthesize data and make reporting a more manageable task. Consequently, Liquidnet suggested to ASYV the use of Salesforce platform since Liquidnet had used it in the past, and since there could be one Liquidnet employee, a developer, supporting the MEAL team on the development of the system adapted to the needs of the village.

After agreeing to use the Salesforce platform as the main tool for data warehousing, the MEAL team, consisting of Eric Tuyisenge (Evaluation and Monitoring Officer) and Shayna Saliman (a fellow who has a contract with the village for one year), started to gather requirements to develop the village-wide database in Salesforce. The list of requirements was sent in February 2017 to Rahul Bhat, the head of Business Intelligence and Corporate Solutions at Liquidnet and the Salesforce developer; he is currently the direct contact for the development of the platform. Throughout the following months, the original concept of having a village-wide database changed due to a limited number of licenses. Among the requirements, the team initially considered the use of the platform by students, teachers, departments and administrative staff with their respective profile permissions. However, the idea changed into having a MEAL database that would only store the following data: baseline student survey results, which include Intake, KAP and DAP (includes health knowledge attitudes and behaviors survey, developmental assets profile and progress out of poverty index); and psychosocial surveys, which are surveys that the team administer once when the students first

arrive, and again when they leave in order to track students' progress and identify improvement opportunities for other departments.

The Salesforce platform is a great opportunity for ASYV for the following reasons:

1. To bring greater efficiency across individual departments and administrative staff who need to track historical data from students
2. To improve analytical data and reporting to make more data-informed decisions
3. To improve knowledge about students by having access to aggregated data
4. To provide flexibility in that some features can be added (by the developer) depending on the needs of the village or if the survey materials change over time
5. To offer support with a large community of experts and forums that can be accessed for troubleshooting and capabilities expansion
6. To provide a well-justified customer relationship management tool that is sophisticated, functional and sustainable

Outcomes

Summary

The consultants had repeated sessions with the MEAL team to justify the takeoff of Salesforce, with three primary issues to be considered for the advancement of the project. First, the MEAL team periodically revises their forms and surveys which may be adjusted by them or by external consultants in order to assure the quality of the data collected. If the survey materials are changed, Salesforce fields and relationships need to be edited as well. Second, data gathering tools in the village were implemented not long ago which means that the team is constantly on a learning curve to understand and assimilate the tools. Third, there will be delays in receiving and adjusting the system from the developer; the progress of the development of the system relies on the developer's time availability.

After continuous iterations with the MEAL team throughout the ten weeks, the development of the system progressed. The original idea of the system was reconsidered into a more realistic perspective where the data funneled to Salesforce is going to be the data that the MEAL team collects. The team has a clearer idea of the look-and-feel of the system after being shown the sandbox environment and some screens that were created by the developer. Finally, the consultants created student object and custom fields in Salesforce regarding recruitment, intake, psychosocial, KAP, DAP and PPI surveys; the grand total of created fields was 336.

Activities

- Documented system behavior from the user's perspective through use case description (see Appendix D)
- Met frequently with MEAL team and developer to review system changes based on requirements and needs
- Gathered feedback from MEAL team and designated end users

- Held weekly check-in meetings with the developer to stay aligned on the MEAL team's goals and talk about next steps
- Developed Salesforce and supported Rahul Bhat (main developer)
- Customized questions (fields) and answer choices (values) in Salesforce that were already created with new information provided by the MEAL team
- Deleted more than 50 questions (fields) with their answer choices (values) on Salesforce that were no longer valid
- Created questions (fields) and answer choices (values) in Salesforce for recruitment, intake, KAP, DAP and PPI survey materials
- Met with the head of the MEAL team, Eric Tuyisenge, to verify and edit fields created in Salesforce regarding student object

Outputs

The attainment of the outputs proposed in the first weeks by the consultants was restrained as a consequence of delays in receiving the demo of the system. Unfortunately, during three weeks of June the developer was out of the office. In addition, the MEAL team was advised by two external consultants in order to rearrange the recruitment and alumni surveys which led us to edit what was already created in Salesforce. The developer and the consultants started to take on the project again the second week of July when we were trained on object and fields creation in Salesforce. The following are the outputs achieved by the end of the program:

- Explored needs and business requirements for the system
- Reevaluated the scope of the system with the MEAL team and main developer
- Designed an Excel file to have a with all fields created and the ones that need to be created
- Created student object and custom 336 fields in Salesforce regarding recruitment, intake, psychosocial, KAP (Knowledge, Attitudes and Practices), DAP (Development Assets Profile) and PPI (Progress out of Poverty Index) surveys

Outcomes

Although the system has not been put in production environment, the following remain as potential outcomes to be measured once the system is delivered to the MEAL team, and Salesforce license holders in the village are trained:

- Salesforce system implementation allows MEAL team to more efficiently and closely monitor individual departments
- MEAL team training in Salesforce results in a high and sustained level of usage with 8 license holders logging on per week
- Data integration with other applications (Google forms, Excel and CommCare) reduces by 30% the time that the MEAL team takes to clean and transform data
- Report and dashboard creation with aggregated and historical data about students will allow MEAL team to share it with management team of the village to make more data-informed decisions

Indicators

- Volume of reports
- Average time it takes to generate reports
- Average time it takes between data collection and meeting with departments to share data analysis
- Number of logins per week to Salesforce
- Total time that MEAL team takes on data manipulation per week

Risk to Sustainability

Although the Salesforce platform has been pointed out as the most suitable solution and a great opportunity to fulfil the needs of the MEAL team, this platform may face several issues. First, the technical support is located in United States, which means that if the platform crashes or freezes, or if it has a bug to be fixed, there is only one person responsible who could support the village on how to overcome these issues; there is no current Salesforce consultant in Rwanda who could provide any type of support. Second, the platform is a complex tool and is not intuitive for new users. Therefore, there has to be a trained individual at ASYV who can support and guide other users when they need it. If there is no one competent in its usage, the platform might not be used in the future. Third, the platform is not scalable. Salesforce, as part of the Enterprise Edition package, provided ten free donated licenses, but to scale the system beyond the ten licenses there is a very high fee per new license. These challenges have to be considered in the future to ensure the success of having not only a MEAL team database, but to have a centralized location for all of ASYV's data stored in Salesforce.

Recommendations

1. Set up a timeline between the MEAL team and the developer for next steps of system development: The contact and communication between both teams have to be improved in order to achieve the expected results for the project. Consultants served as bridge during the weeks they were working at the village, but setting a routine for communication will help them to better manage their interactions.

2. Training the head of MEAL team on fields creation in Salesforce: Eric Tuyisenge, as head of the team, is a tech-savvy person who has been working with different systems and applications during his work with the village. To improve efficiency with the project Eric himself could be in charge of adding or editing fields in Salesforce since his team is the one administering all survey materials that are created in the system. Moreover, he is the one that will know all changes suggested by external consultants that will occur to the questions (fields) and answer choices (values) in each of the materials. Therefore, he could access directly the sandbox environment and make low-level changes that are needed.

3. Organize a training session with all Salesforce license holders once the demo is delivered: For the sustainability of the project, it is mandatory to allocate the Salesforce licenses to users from each department, and start training them on the system. Eric Tuyisenge will have to make people accountable so that they have a sense of ownership of the project; past systems have not taken off due to a lack of user involvement and poor communication.

4. Salesforce adoption: Since the MEAL team is in charge of the project, they should also be responsible for administering the Salesforce licenses that are used in the village. The team should set some KPIs in order to maintain the usage level of the system at a decent rate. As an example, one KPI could be that all Salesforce license holders must maintain 75% of usage level on a monthly basis. By doing this, they can assure that the system is being used by each of the departments or by the users to whom they allocated the licenses. Salesforce has the flexibility to create simple reports with metrics that can track when a user logs into the system.

5. Improve Internet speed/bandwidth: The consultants recognize that improving Internet speed may face budgetary constraints and overall technical constraints from ASYV's location, but recommend that ASYV explore options for improving speed, as they will greatly improve access to Salesforce since it is a cloud-based system. Carnegie Mellon University campus in Rwanda has been using Salesforce for its recruitment and internship programs, and based on their experience using it, they suggested the consultants to improve internet connection as must for the success of the project.

V. Additional Recommendations

Explore use of Academic Bridge for data collection and analysis

Academic Bridge is a Rwandan ICT company based in Kigali that is primarily a school information management system, providing a convenient and customizable way to collect student data and monitor changes over time. In its current form, the platform would allow ASYV to collect student biographical data, information on academic performance and attendance, library information, limited health data, and to communicate with parents and caretakers, among other functions. The company owners also offer full customization to fit ASYV's somewhat unique data collection needs.

A partnership with Academic Bridge may help supplement or supplant data collection methods that are currently uncentralized and that the consultants began to address by introducing Salesforce. The consultants believe that Academic Bridge may be a more sustainable data collection solution than Salesforce due to its cost, scalability, ease of use, and involvement and location of the owners/developers. While Salesforce offers ten free licenses to nonprofits, additional licenses are very expensive; Academic Bridge offers no free licenses, but offers an unlimited number of licenses for a relatively low cost. Salesforce is fairly easy to use but very difficult to develop, so any changes in the desired data collection fields must be made by an out-of-country developer. This can take a great deal of time and can be subject to communication issues. The location of Academic Bridge's owners/developers in Kigali means that data collection fields can be rapidly changed with constant feedback, and that Academic Bridge can offer in-person training in the use of the platform. Finally, Academic Bridge is used in several excellent schools in Rwanda, which presents an opportunity for pooled data collection and analysis that may reveal country-wide academic trends.

The primary limitation to Academic Bridge is its design as a traditional student information management system for more typical Rwandan schools. Its current data collection tools do not fully address the needs of ASYV, particularly the need to track comprehensive health and psychosocial information. However, the developers have expressed willingness and interest in expanding the tools to meet ASYV's needs.

The consultants recommend that ASYV explore the use of Academic Bridge either as a supplement to or in replacement of Salesforce and other current data collection tools for the reasons listed above. One meeting was already completed between Academic Bridge and ASYV administrators while the consultants were in country in which the platform was demonstrated. Further meetings can be arranged by contacting Academic Bridge using the information on their website http://www.academicbridge.rw/.

Create a data analysis and IT support staff position or Fellowship

ASYV currently only has one dedicated IT support staff member, Deo Kabirigi, and two members in the MEAL team, full-time staff member Eric Tuyisenge and one year-long Fellow. These staff face a huge workload in respectively supporting the IT activities of 600 students and staff at ASYV, and organizing and analyzing data collection from all school departments and other events including recruitment, alumni, family monitoring, health and wellness, etc. In addition, ASYV currently does not have a staff member trained in high-level data analytics that could provide support to the MEAL in analyzing and interpreting large datasets.

The consultants recommend that ASYV support these staff members by either hiring a full-time staff member or creating a Fellowship position in data analytics and IT support; there was an IT fellow in 2014 that supported the IT department full-time. However, this position should be recurrent for every year. The candidate for this position will require to be flexible in working with technology and at same time with analytic tools. The village needs someone who can work with computer networks and ensure that they run efficiently by doing software updates, monitoring server activities, troubleshooting and keeping up the server security. That person should also feel comfortable using common statistical software (e.g. R, Stata, or Python) and techniques (e.g. regression modeling) to support the MEAL team. He or she will also be responsible for extracting datasets, analyzing them and preparing reports with graphical presentations by using tools such as Tableau or Excel. This new position would help ASYV achieve its goals of improved data collection, analysis, and monitoring of student progress, as well as offer support for curriculum digitization and all other technology-dependent projects.

About the Consultants

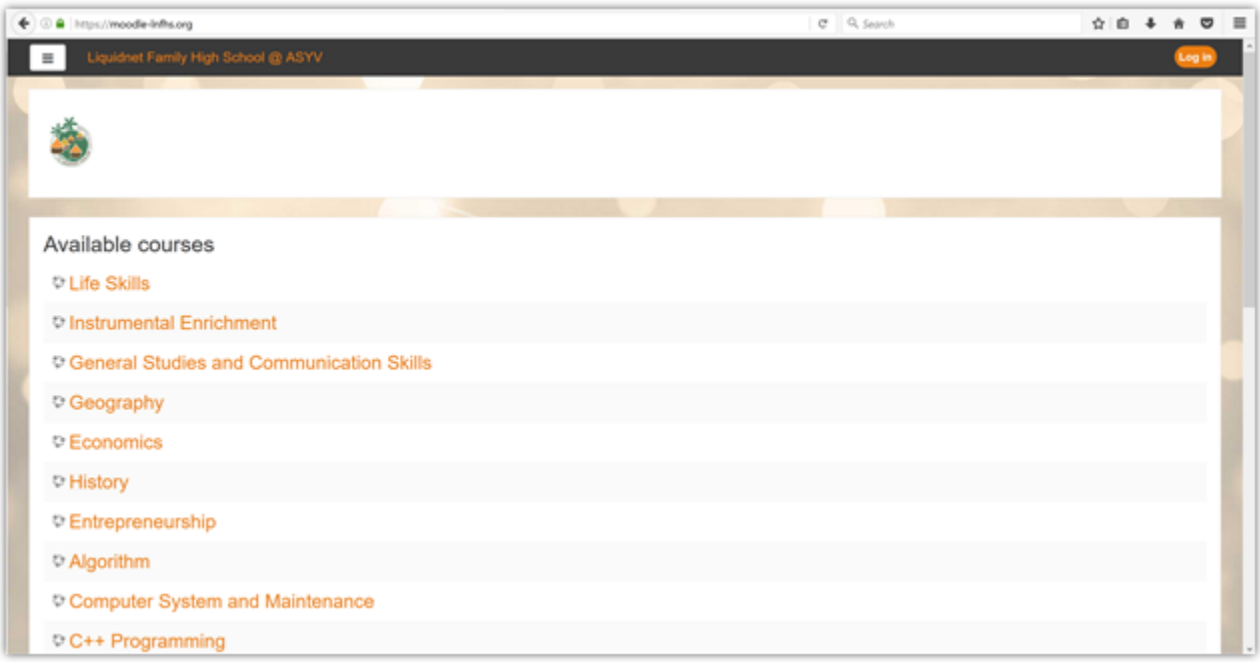
David Espinosa is a Master's student in Information Systems Management at Carnegie Mellon University's Heinz College. He will graduate in December 2017 and will expect to work in the consulting industry afterwards. He wants to apply all the knowledge and skills gained in the US to start his own consulting company in his native country, Colombia.

Payce Madden is a rising second-year Master's student in Public Policy and Management at Carnegie Mellon University's Heinz College with a concentration in International Trade and Development. She will return to Carnegie Mellon in the fall to complete her degree.

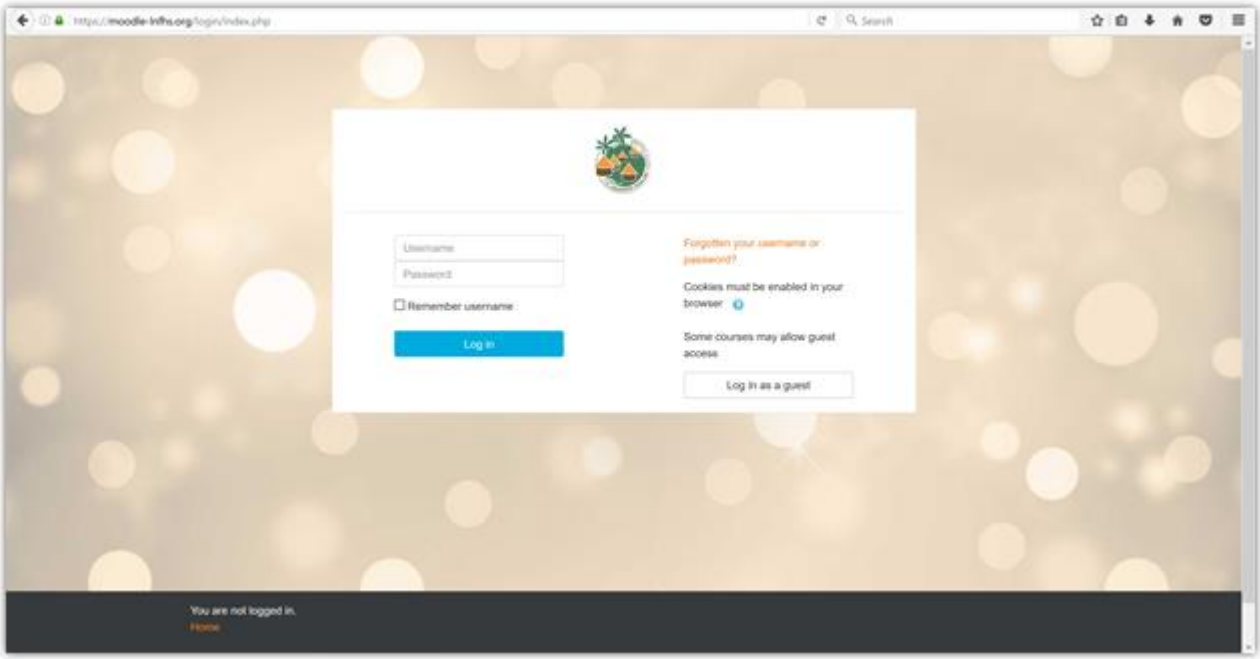
List of Appendices

Appendix A: Moodle Appearance

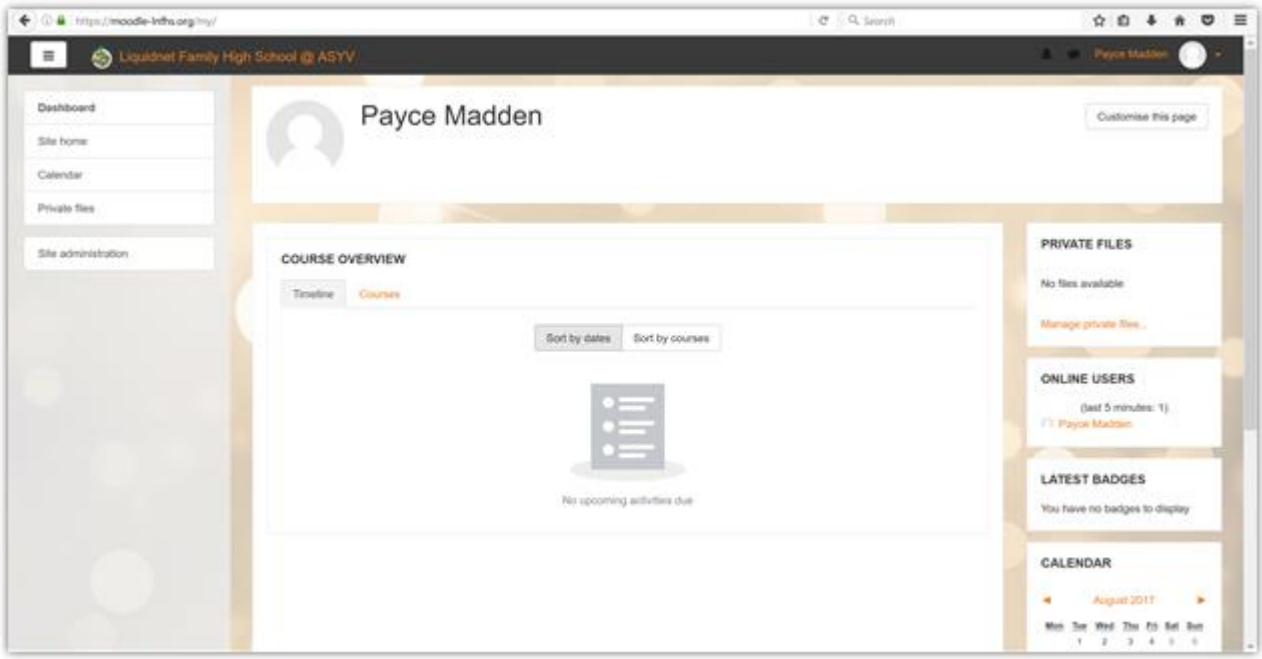
1. Welcome screen (for users not logged on)



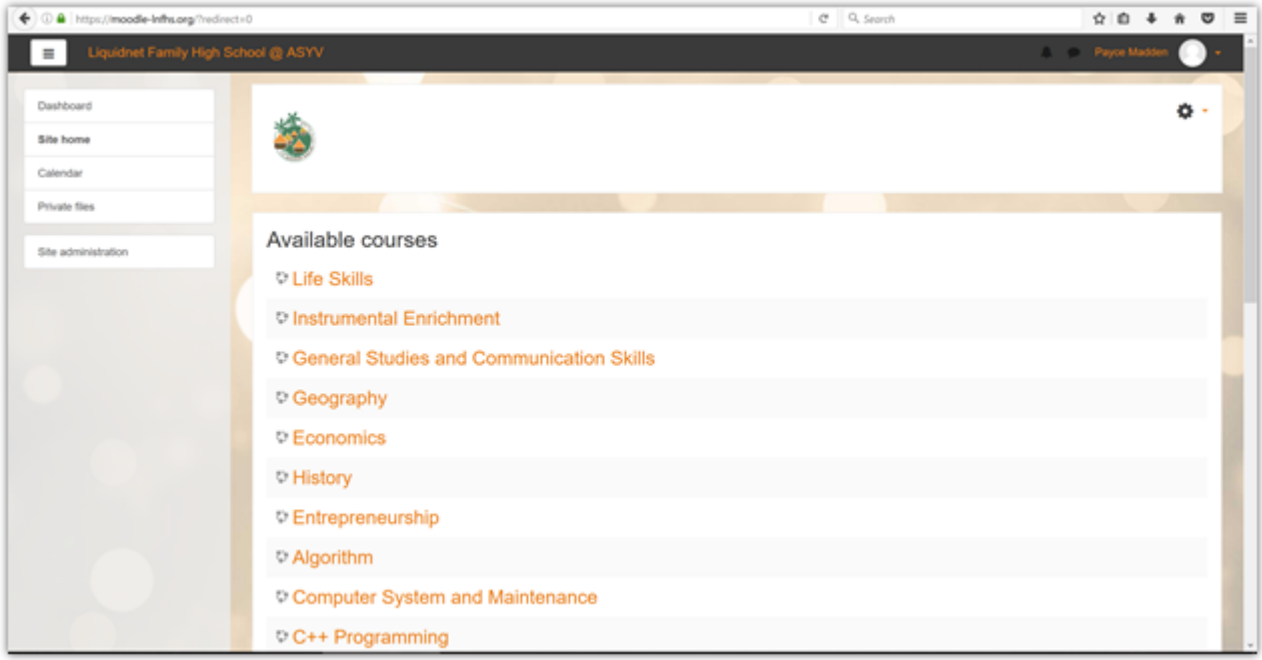
2. Log on screen



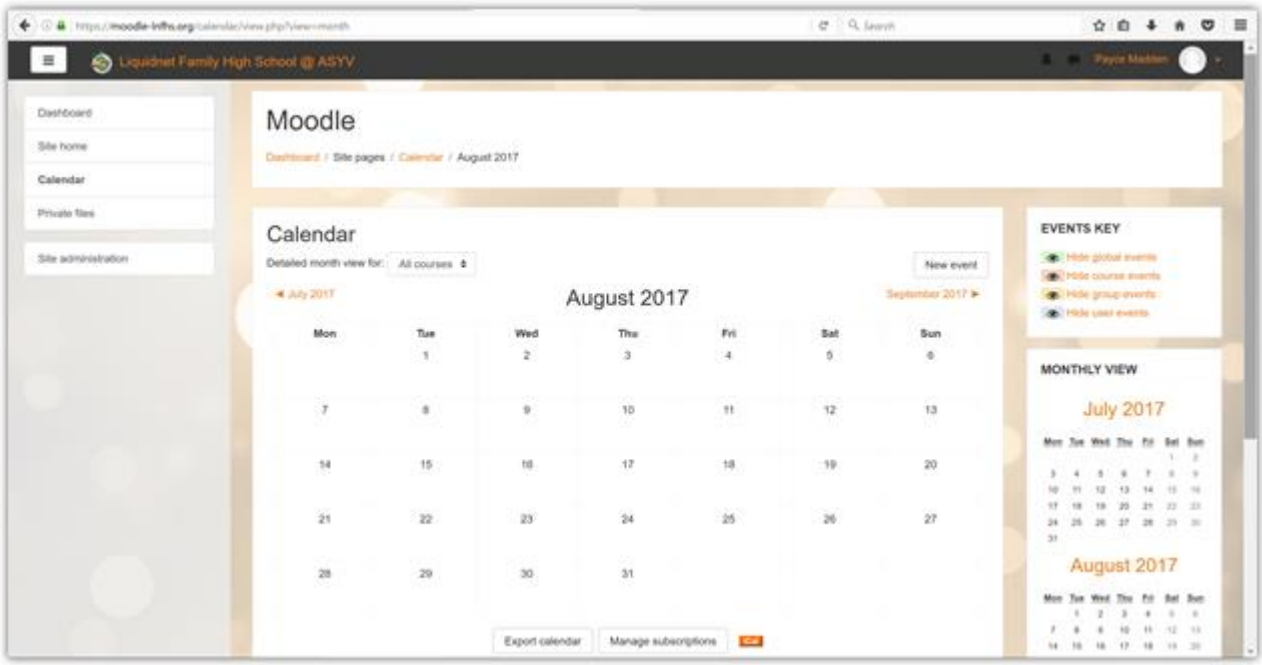
3. Dashboard



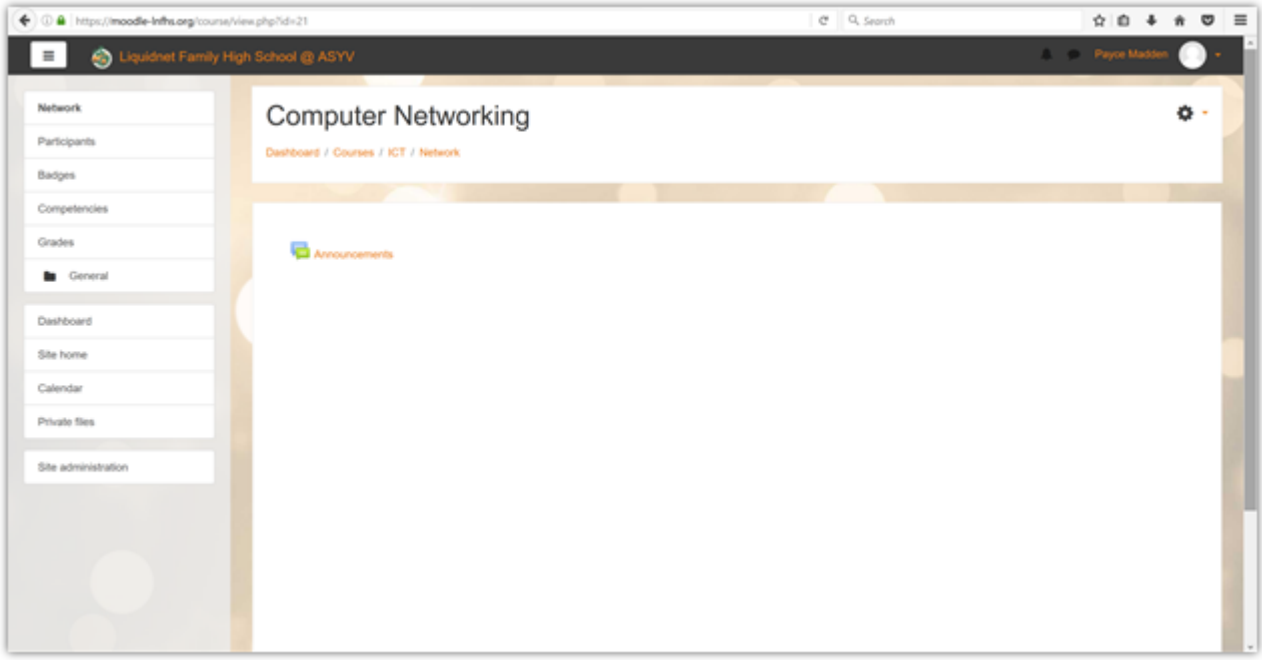
4. Site home



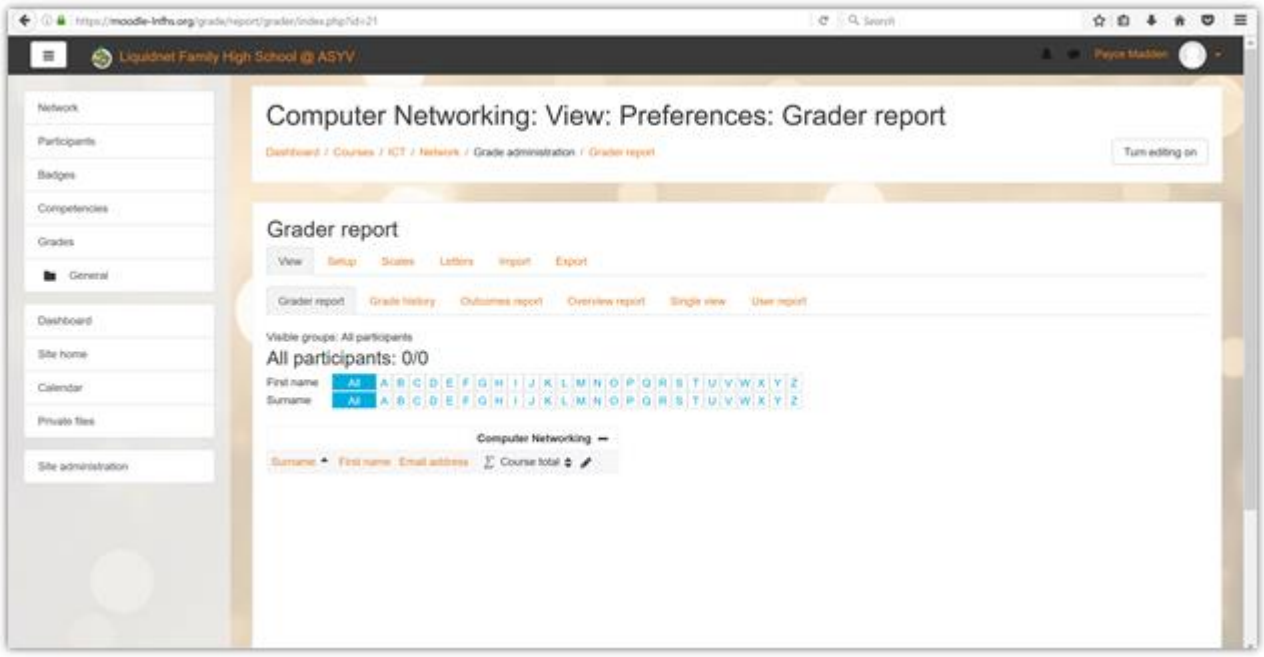
5. Calendar



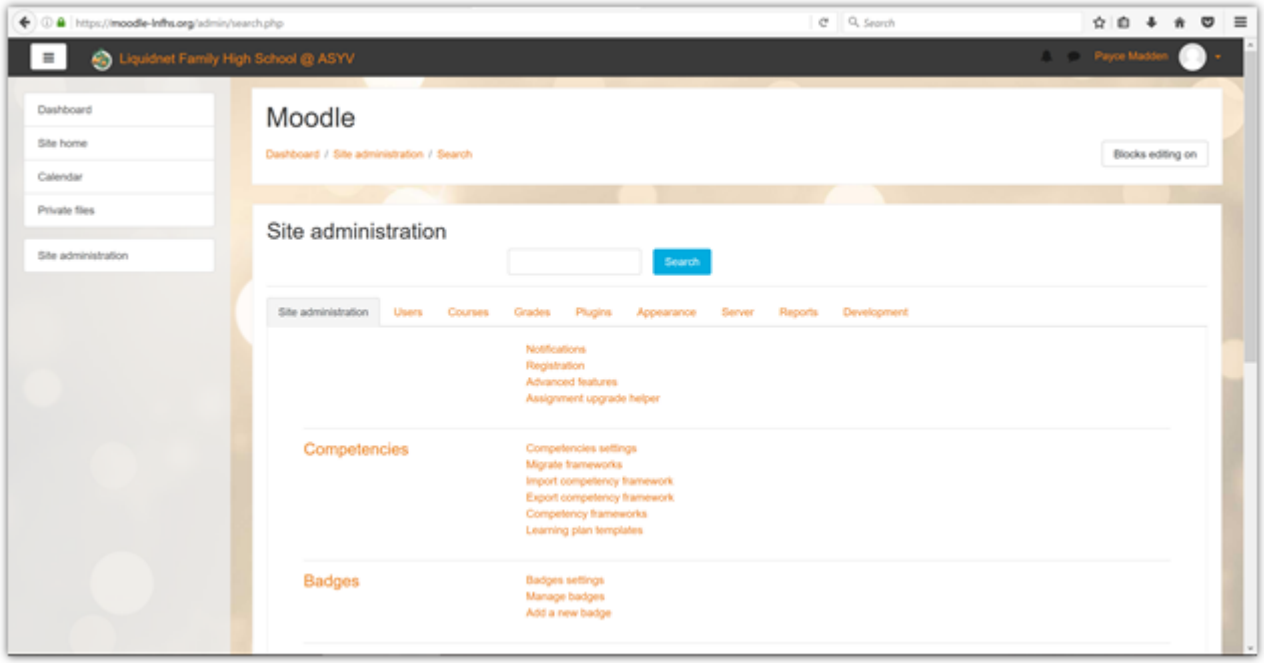
6. Course page: Computer Networking



7. Grader report: Computer Networking



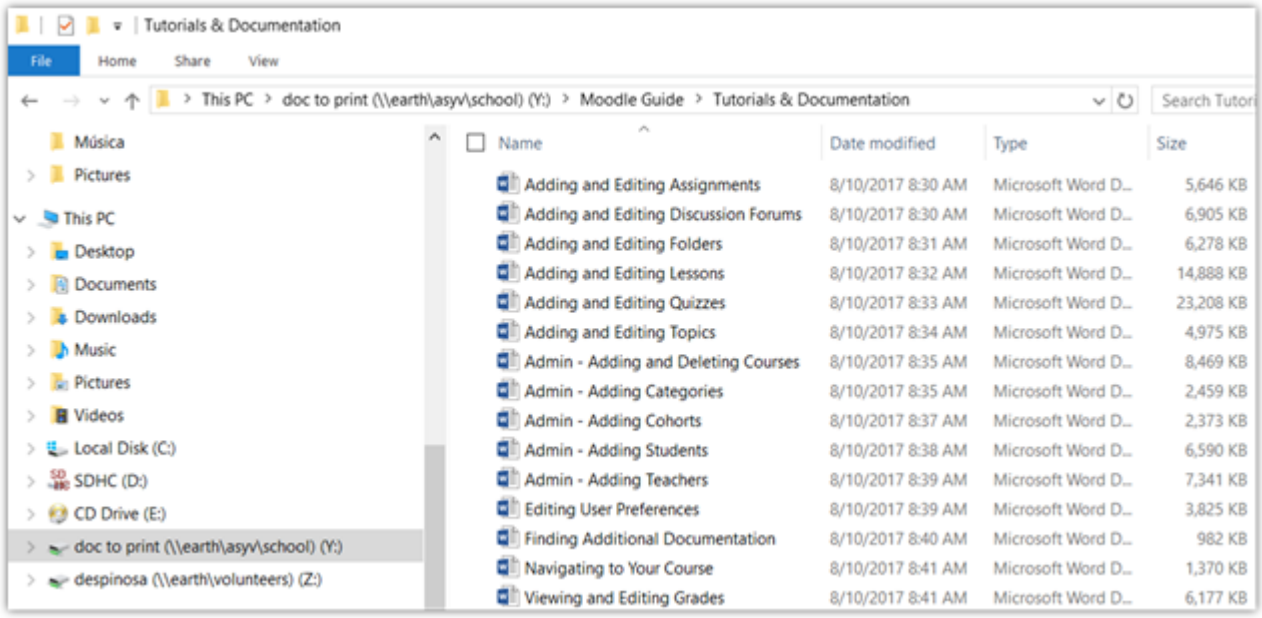
8. Site administration



Appendix B: Moodle Guide for Teachers

Simplified documentation for teachers was created for the following ten topics: adding and editing assignments, discussion forums, folders, lessons, quizzes, and topics; viewing and editing grades; navigating to your course; editing user preferences; and finding additional documentation. This documentation was uploaded to ASYV's shared folder.

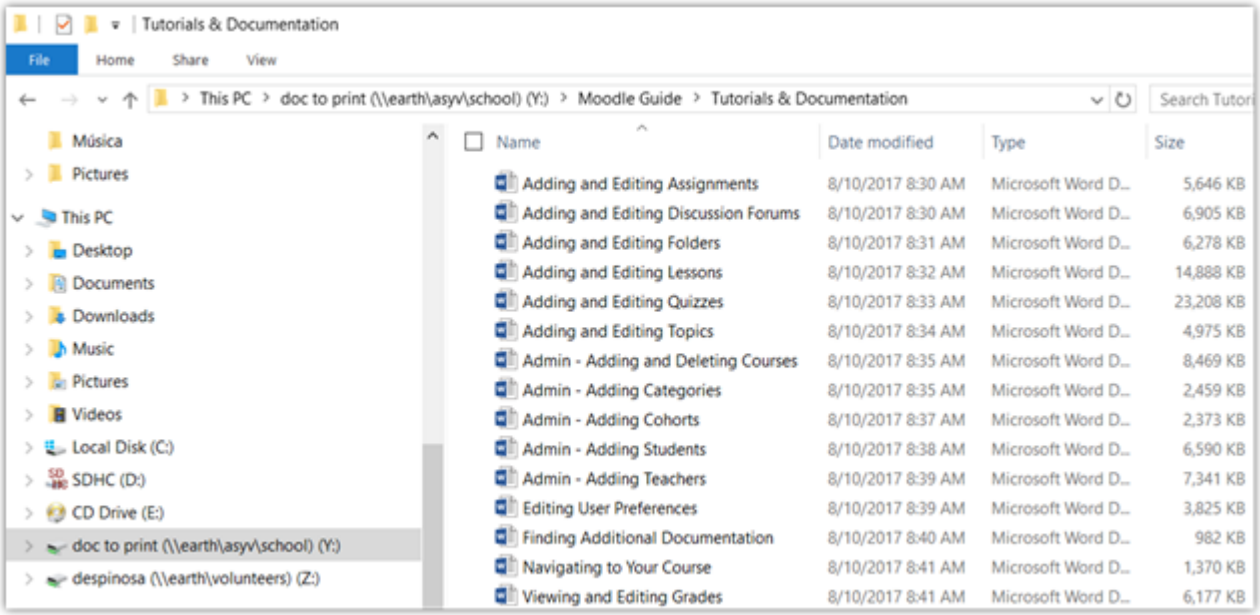
Due to the size of the documentation files, these files are not included in the report. ASYV staff can access these files on the shared folder; others who wish to access the documentation can request to do so with the consultants.

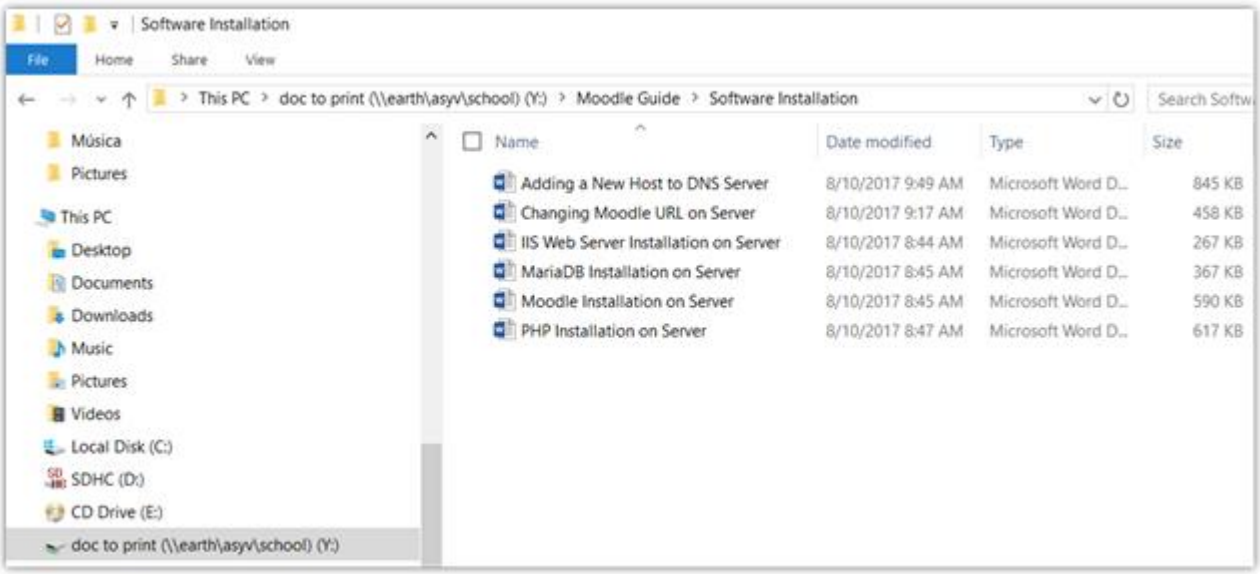


Appendix C: Moodle Documentation for Administrators

Simplified documentation for administrators was created for the following five topics: adding and deleting courses, adding categories, adding cohorts, adding students, and adding teachers. Additional documentation on Moodle installation was created for ASYV's IT staff on the following six topics: IIS web server installation on server, MariaDB installation on server, Moodle installation on server, PHP installation on server, changing Moodle URL on server, and adding a new host to DNS server. This documentation was uploaded to ASYV's shared folder.

Due to the size of the documentation files, these files are not included in the report. ASYV staff can access these files on the shared folder; others who wish to access the documentation can request to do so with the consultants.





Appendix D: Salesforce Use-Case Description

Use-Case 1: View Recruitment Report

- **Brief Description**

  The current use case describes how Salesforce license holders can view the recruitment report in Salesforce.
- **Actor Brief Descriptions**

  Salesforce Users
- **Preconditions**

  There should be an active connection with valid username and password to the customized Salesforce system. Salesforce is also a cloud-based solution therefore users need decent internet speed to access it.
- **Basic Flow of Events**

  1. The use case begins when the Salesforce users log in.
  2. The Salesforce system validates the username and password.
  3. The Salesforce user clicks on the report tab. The following options will be shown:
     a. New report
     b. Previously created report
  4. The Salesforce user navigates to the 'New report' option. The next page displays a list of report types (e.g. recruitment, alumni, psychosocial) with specific fields which the user wants to create the report.
  5. Once the report type is selected, the Salesforce user navigates on the fields for which they want to generate the report.
  6. Once the fields are selected, the system generates a default report fetching some content related to those fields and displays the following options on the upper part of the report:
     a. Time range
     b. Date fields
     c. Students (e.g. all students, S4, S5, S6)
  7. The following are some fields that can be accessed on the report:
     a. Student Last Name
     b. District
     c. Orphan Status
     d. Number of meals per day
  8. The use case ends.
- **Alternative Flows**

  User selects a previously created report

  1. The Salesforce user reaches step three and selects the previously created report option.
  2. The Salesforce user is then directed to a page where a list of all previously created reports are displayed.
  3. The Salesforce user selects a report thus predetermined columns with content are displayed on the screen.

Invalid User

1. In step two of the basic flow, if the credentials entered by the Salesforce user are not associated with him or her, the login page will prompt a message: “Invalid username or password, please try again”.
2. The use case resumes at step one.

Content not available yet

1. The Salesforce user reaches step six and there is no data in the system about one or more fields on a type of report.
2. The total records on the selected report will show a 0.

- **Post-conditions**

Successful completion

The Salesforce user has successfully accessed and viewed the recruitment report through various fields and content from the survey.

Use-Case 2: Customize Recruitment Report

- **Brief Description**

The current use case describes how Salesforce license holders can customize the recruitment report.

- **Actor Brief Descriptions**

Salesforce Users

- **Preconditions**

The Salesforce user should be viewing the recruitment report as it was described in use case 1.

- **Basic Flow of Events**

1. Salesforce user clicks on Edit button in the right-upper part of the screen.
2. Salesforce user selects range of time from (start time) which they want to view data.
3. Salesforce user selects range of time to (end time) which they want to view data.
4. Salesforce user selects a group of students (e.g. all students, S4, S5, S6) to generate recruitment report on.
5. Salesforce user selects and drags the specific fields from that want to be accessed.
6. Salesforce user rearranges/sorts columns in the recruitment reports according to their preference and requirement.
7. Once all the filters have been selected by the Salesforce user, the “save” button can be pressed. This will send the Salesforce user back to where the customized report will be displayed.
8. The Salesforce user can access the report again in the future by accessing previously created report option on report tab.
9. The use case ends.

- **Alternative Flows**

Content not available yet

1. In step three, the Salesforce user enters a smaller range time (end time) than range time from (start time) entered in step two.
2. The system will give a failure message and prompt to enter a valid end time.

- **Post-conditions**

  Successful completion

  The Salesforce user has successfully generated, customized and viewed the recruitment report of all students or specific grades.

Use-Case 3: Download Recruitment Report

- **Brief Description**

  The current use case describes how a Salesforce user can export a recruitment report (or any other report already created).
- **Actor Brief Descriptions**

  Salesforce Users
- **Preconditions**

  The Salesforce user should be viewing the recruitment report after accessing it from the list of reports. The Salesforce user has customized the recruitment report based on their preference and requirement.
- **Basic Flow of Events**

  1. Salesforce user clicks on Edit button in the right-upper part of the screen.
  2. The system prompts a list of options where "Export" can be clicked.
  3. The Salesforce user clicks on Export option.
  3. The Salesforce user has the possibility to select either Excel or CSV format to export the recruitment report.
  4. The Salesforce user selects the format that wants to be exported.
  5. The user then clicks on the Export button. This automatically starts the download on the system of the user.
  6. The use case ends.
- **Post-conditions**

  Successful completion

  The Salesforce user has successfully exported the recruitment report file in the desired format.